BALLARD MINE

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

COVER MATERIAL AND EXPLORATION DRILLING REPORT

DRAFT - REVISION 0

JUNE 2017

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ACRONYOMS AND ABBREVIATIONS

ABA	acid base accounting
AGP	acid generation potential
ANP	acid neutralization potential
AOC/CO	Administrative Settlement Agreement and Order on Consent / Consent Order
ARD	acid rock drainage
ASA	Agronomic Society of America
ASTM	American Society of Testing and Materials
A/T	Agencies and Tribes
bgs	below ground surface
COC	chain of custody
ET	evapotranspirative
GPS	global positioning system
HSA	hollow stem auger
IDW	investigation derived waste
LL	liquid limit
MDD	maximum dry density
mg/kg	milligrams per kilogram
NNP	net neutralization potential
NPR	neutralization potential ratio
ODEX	overburden drilling excentric
P4	P4 Production, LLC
PI	plasticity index
PPT	part per thousand
RA	remedial action
RC	reverse circulation boring
RD	remedial design
SB	soil boring
Site	Ballard Mine Site
SM	standard method
SPLP	Synthetic Precipitation Leachate Procedures

ACRONYOMS AND ABBREVIATIONS
(continued)

TP	test pit
Tribes	Shoshone-Bannock Tribes
USCS	Unified Soil Classification System
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
WDEQ	Wyoming's Department of Environmental Quality

1.0 INTRODUCTION

This Ballard Mine Cover Material and Exploration Drilling Report (Ballard Drilling Report) has been prepared to document the findings of the drilling program conducted at the Ballard Site in 2016. This Ballard Drilling Report, in combination with the *Ballard Mine Feasibility Study Memorandums #1 and #2* (MWH/Stantec, 2016a and 2017), will be used to support the Remedial Design (RD) for the selected Site remedy, which will be summarized in the Proposed Plan and Record of Decision prepared for the Ballard Site.

This document has been prepared by MWH, now part of Stantec, on behalf of P4 Production, LLC (P4), in accordance with the requirements of the Administrative Settlement Agreement and Order on Consent/ Consent Order for Remedial Investigation/Feasibility Study (2009 AOC/CO; USEPA, 2009). The 2009 AOC/CO is a voluntary agreement between P4 and the United States Environmental Protection Agency (USEPA), the Idaho Department of Environmental Quality, the United States Department of Agriculture, Forest Service, the United States Department of the Interior, Bureau of Land Management, and the Shoshone-Bannock Tribes (Tribes), collectively referred to as the "Agencies and Tribes" or A/Ts.

1.1 SITE DESCRIPTION

The Ballard Site is located approximately 13 miles north-northeast of Soda Springs, Idaho in Caribou County (**Drawing 1-1**) and is accessed via the Blackfoot River Road, off of State Highway 34. The Site is comprised of external mine waste rock dumps, open pits, an abandoned haul road, and the Ballard Shop Area, all of which cover approximately 534 acres of disturbance. P4 owns approximately 865 acres of surface rights and has a surface easement from the State of Idaho on an additional 360 acres on the west side of the Site. The adjoining properties are all privately held ranching and farming properties.

1.2 SCOPE AND PURPOSE

As described in the *Ballard Mine Cover Material Exploration Work Plan - Final Revision 2* (*Ballard Exploration Work Plan*; MWH/Stantec, 2016b), the objectives of the investigation were as follows:

- Characterize the geochemical properties of the Dinwoody Formation and Rex Chert Member of the Phosphoria Formation for use as cover or backfill materials during the RD/remedial action (RA).

- Characterize the geochemical, geotechnical and agronomic properties of alluvium for use as cover materials during the RD/RA.
- Evaluate the thickness of waste rock dumps in some areas of the Site.
- Determine the location and lateral extent of the Meade Peak Member (ore member) of the Phosphoria Formation throughout the Site to aid evaluation of incidental ore recovery during the RD/RA.
- Identify the existence and depth to groundwater in areas that may be encountered during the RD/RA (e.g., during ore recovery and/or during excavation of materials for cover or backfill materials).

This report documents the results of the 2016 drilling investigation to fulfill the above objectives.

1.3 REPORT ORGANIZATION

This report includes the following sections, each with their specific objectives.

- Section 2.0 – Field Investigation. Describes the field activities conducted and equipment used during the 2016 drilling investigation.
- Section 3.0 – Laboratory Testing and Results. Describes the geochemical and geotechnical laboratory testing performed on samples collected during the investigation and presents the results for these samples.
- Section 4.0 – Summary. Evaluates the orebody and cover material volumes and the geochemical, geotechnical, and agronomic properties of the cover materials based on the testing results.
- Section 5.0 – References
- Appendix A – Boring and Test Pit Logs
- Appendix B – Investigation Field Reports and Photographs
- Appendix C – Geochemical and Agronomic Laboratory Reports
- Appendix D – Geotechnical Testing Reports
- Appendix E – Geologic Cross-Sections
- Appendix F – 2014 Ballard Borrow Source Area Investigation Report
- Appendix G – Comments and Responses to Comments (not included in the Draft)

2.0 FIELD INVESTIGATIONS

Summaries of the drilling, excavation of test pits, and sample collection procedures are described in this section. The location of samples, frequency of sampling, and methods and equipment used for sampling and testing are presented in the subsections below. The investigation boreholes and test pits are presented on **Drawing 2-1** and the as-built coordinates and drilling information are included in **Table 2-1**.

2.1 BOREHOLE DRILLING AND SAMPLE COLLECTION PROCEDURES

The investigation borings were drilled using reverse circulation (RC) and overburden drilling excentric (ODEX) drilling methods depending on the boring depths and sampling objectives. Deeper boreholes to characterize the depth and extent of the Meade Peak Member were drilled using RC drilling methods. The shallower overburden borings, in some cases installed in waste rock material and alluvium, were drilled using ODEX methods instead of hollow stem auger (HSA) methods as proposed in the *Ballard Exploration Work Plan* as a result of the ODEX method's ability to drill through coarser materials at depth. The drilling methods and sample collection for each drilling type are outlined below. A P4 geologist, or qualified representative, logged the soil and rock collected during the RC and ODEX drilling programs and the borehole logs are provided in **Appendix A**.

2.1.1 RC Boreholes

Vertical and angled RC boreholes were used to gather information (thickness, extent, and structure) on the Meade Peak Formation and the overlying overburden units. A truck-mounted RC rig was used to drill the boreholes between June 9 and July 27, 2016. Equipment and drilling crews were supplied by Layne Christiansen Drilling and contracted through P4. Of the 53 RC boreholes proposed in the *Ballard Exploration Work Plan* (*Ballard Exploration Work Plan*; MWH/Stantec, 2016b) (see **Table 2-1**), 17 were not drilled in the proposed locations shown in the *Ballard Exploration Work Plan* (*Ballard Exploration Work Plan*; MWH/Stantec, 2016b) and 18 were added due to changed field conditions and information obtained during the field program for a total of 54 RC boreholes.

Cuttings obtained from RC drill holes were collected, retained, and logged over approximately 2 to 5-feet intervals along the length of each borehole by a P4 geologist or its representative. Following the logging of all drill holes, samples from the Rex Chert Member and the Dinwoody Formation

were randomly selected by MWH/Stantec. Additional samples were added in coordination with P4 based on professional judgement with consideration of lithologic and spatial variability.

Samples intervals within a RC borehole were composited by the P4 geologist or its representative and placed in labeled re-sealable plastic bags for geochemical testing as summarized in **Table 2-1**. The results of these analyses are discussed in Section 3.0.

2.1.2 ODEX Boreholes

The ODEX boreholes were used to gather information on the physical and chemical properties of alluvium and Dinwoody Formation materials to be considered for use in the cover systems as part of the proposed Site remedy. Soil borings were drilled using a truck mounted ODEX rig between September 8 and September 23, 2016. Equipment and drilling crews were supplied by Ruen Drilling and contracted through P4. Of the proposed 15 ODEX (formerly HSA) boreholes in the *Ballard Exploration Work Plan* (*Ballard Exploration Work Plan*; MWH/Stantec, 2016b) (see **Table 2-1**), one borehole (BLD16-04GT) was not drilled due to difficult rig access.

Borings were advanced using a Delta Base 95G track mounted drilling rig, utilizing a 4-inch ODEX system. Cyclone cuttings and split-spoon samples of both the alluvium and the weathered (soil like) Dinwoody Formation were logged, visually classified referencing the Unified Soil Classification System (USCS), and retained along the entire length of each ODEX borehole as described in the *Ballard Exploration Work Plan* by a P4 representative. Photos of typical recovered samples and daily field logs are provided in **Appendix B**.

Split-spoon samplers (3" modified California sampler) were decontaminated between sample intervals and following borehole completion using the methods and procedures outlined in the *Ballard Exploration Work Plan*. In the event that groundwater was encountered, the boring was continuously logged to total depth; however, no samples were submitted for geochemical or geotechnical analysis from depths below the contact with water.

Following the drilling and logging of all boreholes in the program, alluvium and Dinwoody Formation samples were randomly selected by MWH/Stantec in coordination with P4 with consideration to sample volumes. Additional samples were added in coordination with P4 based on professional judgement with consideration of lithologic and spatial variability. Sample intervals within a borehole were composited by a P4 geologist and placed in labeled re-sealable plastic bags

and 5-gallon buckets for geochemical, geotechnical, and agronomic testing as summarized in **Table 2-1**. The results of these analyses are discussed in Section 3.0.

2.1.3 Borehole Abandonment and Investigation Derived Waste Disposal

Standard borehole abandonment was performed in accordance with IDAPA 37.03.09, Well Construction Standard Rules. The boreholes were completely filled with approved seal material, which included using hydrated bentonite chips in those boreholes encountering groundwater, otherwise borings were filled using a combination of drill cuttings, bentonite and concrete. Concrete was used to seal the upper 5 feet of each boring. Remaining soil cuttings were smoothed out to blend with the surrounding land surfaces during reclamation of the temporary drill pads and access roads.

Investigation derived wastes (IDW) such as empty bentonite bags and general trash were disposed in a trash dumpster at the Ballard Shop Area at the direction of P4. Other IDW, such as oily rags and used hydraulic oil, was removed from P4 property by the drilling contractors and transported to their facilities for proper disposal.

2.2 TEST PITS

As proposed in the *Ballard Exploration Work Plan*, test pits were utilized in addition to boreholes to collect additional alluvial samples for geotechnical and agronomic/soil chemistry testing. Samples of weathered (soil-like) Dinwoody Formation also were encountered in the test pits and were collected for geochemical and geotechnical analysis. A total of 20 test pits were excavated using a CAT 312D to depths between 4 and 16 feet below ground surface (bgs) on August 24 and 25, 2016. These test pit locations are shown on **Drawing 2-1** and the logs are provided in **Appendix A**. Alluvium and weathered Dinwoody Formation soils were collected from the excavator bucket and retained in 5-gallon buckets. Spoils from each test pit excavation were placed back in the pits following observations and sampling efforts and were blended with the surrounding land surface to reclaim the area.

Following the excavation and logging of all test pits in the program, alluvium and Dinwoody Formation samples were randomly selected by MWH/Stantec in coordination with P4. Soil samples were composited by a P4 representative and placed in labeled re-sealable plastic bags or 5-gallon buckets for geochemical, geotechnical, and agronomic testing as summarized in **Table 2-1**. The results of these analyses are discussed in Section 3.0.

2.3 SAMPLE HANDLING AND DOCUMENTATION

Field activities were documented on forms and logs. Copies of logs are provided in **Appendix A** and field reports and photographs are provided in **Appendix B**. Boreholes and test pits were surveyed using a global positing system (GPS) unit as provided on the logs.

Samples were handled and labeled as described in the *Ballard Exploration Work Plan* (*Ballard Exploration Work Plan*; MWH/Stantec, 2016b). Composited weathered and un-weathered rock and soil samples were packaged into new, 5-gallon bucket or re-sealable plastic bags. Field replicates for geochemical/agronomic testing were collected at a rate of 10 percent of the number of primary samples. Soil samples for geotechnical testing were hand delivered to Strata in Pocatello, Idaho. Geochemical and agronomic samples were shipped to ACZ, Steamboat Springs, Colorado. Samples were shipped under chain of custody (COC), via express delivery.

3.0 LABORATORY TESTING AND RESULTS

Representative rock and soil samples were collected from boreholes and test pits as described in Section 2.0. A summary of the geochemical, agronomic, and geotechnical samples that were collected/submitted and the laboratory tests that were performed are presented in **Table 3-1** and further discussed below.

3.1 GEOCHEMICAL RESULTS

Geochemical samples were collected to determine the leaching potential of overburden units that may be used in the clean cover system that would constructed overlying the mine waste rock under the proposed Site remedy. The geochemical testing program is summarized in **Table 3-1**. A total of 27 samples (11 Rex Chert Member and 12 Dinwoody Formation samples and four duplicate samples) were submitted to ACZ for the following:

- Whole Rock Elemental Analysis (EPA 3050B/6020/6010) - used to determine constituent concentrations of arsenic, cadmium, selenium, and uranium in each lithology.
- Acid Base Accounting – Modified Sobek (ABA) - used to identify any potentially acid generating lithologies. The method results include acid generation potential (AGP) based on total sulfur, acid neutralization potential (ANP) based on carbonate content (assumed to be $CaCO_3$), and sulfur species including sulfide and sulfate. Calculation of AGP based on total sulfur is conservative and is more likely to indicate potential acid generation than other approaches. Use of sulfide sulfur is more realistic under most conditions, but could underestimate AGP if acid producing sulfate minerals are present. Therefore, total sulfur AGP is used for evaluation of potential acid generation for this project, but the AGP is also put into context, as appropriate, by comparison to the sulfide sulfur content of the analyzed materials.

Based on the results of the whole rock elemental analysis, alluvium soil chemistry, and ABA testing approximately 30% of these samples were submitted for Synthetic Precipitation Leachate Procedures (SPLP) analysis, as described below:

- SPLP - EPA 1312/6020/6010) - used to evaluate whether metal constituents of concern have the potential to leach from the materials that may affect water quality.

As shown in **Table 3-1**, five Rex Chert Member and five primary and one duplicate Dinwoody Formation samples were analyzed by the SPLP method. In addition, four alluvium samples for SPLP analysis were selected from the borehole/test pit samples where agronomic/soil chemistry analyses were performed. The whole rock, ABA, and SPLP results are summarized in **Table 3-2** and the complete laboratory results are provided in **Appendix C**.

3.2 AGRONOMIC RESULTS

A total of 14 alluvial soil samples and one duplicate sample were shipped to ACZ for agronomic/soil chemistry testing as shown in **Table 3-1**. Agronomic properties are those factors that affect plant growth and are used to assess the suitability of the soil as a growth media and/or whether amendments would be necessary to improve their suitability to sustain vegetation should the soil being analyzed might be used as a cover material. Given that the main mechanism for removal of water from the proposed evapotranspirative (ET) covers is through plant transpiration, the ability of the soil to sustain plant growth is important. Therefore, the agronomic properties in soils that might be used in a cover system and that could affect plant growth were evaluated with the following tests:

- Arsenic, cadmium, molybdenum, selenium, and uranium (EPA M6020)
- Boron, calcium, magnesium, phosphorus, potassium and sodium soluble (EPA M6010B)
- Cation Exchange Capacity [United States Department of Agriculture (USDA) No. 60 (19)]
- Conductivity [Standard Method (SM2510B)]
- pH (EPA 600/2-78-054 3.3.3)
- Total Carbon and Total Organic Carbon [Agronomic Society of America (ASA) No.9 29-2.2.4)]
- Organic Matter and Saturation Percent (USDA No. 60)
- Sulfur (ASTM D4239-86C)
- Nitrate as N (calculation)
- Nitrate/Nitrite and Nitrite as N (EPA M353.2)
- Nitrogen and Ammonia (EPA M350.1)

The agronomic/soil chemistry results are presented in **Table 3-3**. The complete ACZ laboratory reports for the agronomic/soil chemistry program are located in **Appendix C**.

3.3 GEOTECHNICAL RESULTS

Representative soil samples from the alluvium and weathered Dinwoody Formations were collected and composited for geotechnical analyses. Samples were a composite of multiple intervals within a borehole or test pit and also were spatially composited with other boreholes and test pits as shown in **Table 3-1** to obtain adequate sample volumes.

The composited samples were retained in clean 5-gallon buckets and hand delivered to Strata for geotechnical and hydrological testing. A total of 12 alluvium and four Dinwoody Formation samples were submitted for analysis. In addition, at least 50% of these geotechnical samples were randomly selected for soil water characteristic and dispersion testing. The testing program and the rationale for each analysis are discussed below:

- Atterberg Limits (American Society of Test and Materials [ASTM] D4318) testing – used to evaluate the shrink-swell potential of the soil and its propensity to develop desiccation cracks during cyclical wetting and drying.
- Unified Soil Classification System (USCS - ASTM D2487) and Grain Size Distribution Bulk (ASTM D422) – used to determine particle size distribution and as an indicator of material properties across the entire borrow area. Generally, soils having the same or similar particle size distribution will display similar physical properties.
- Organic Content (ASTM D2974) – conducted to determine the moisture content, ash content and percent organic matter is soil.
- Specific Gravity (ASTM D854) –used to determine the specific gravity of soil solids passing a sieve by means of a water pycnometer.
- Hydrometer Analysis (ASTM D422), Double Dispersion (ASTM D4221) and Crumb Test (ASTM D4221) - used for evaluation of the erosive potential of the soil due to dispersion.
- Standard Proctor (ASTM D698) testing - conducted to further refine the maximum dry density (MDD) and optimum moisture content (OMC) of the soil to be used for specifying the percent compaction and in-place density of the soil.
- Permeability Falling Head (ASTM D5084) – used to determine the hydraulic conductivity of saturated porous soil material.
- Soil Water Characteristic Testing – 8 point (ASTM D6836) – used to determine the hydrological characterization of unsaturated soil.

These geotechnical and hydrological tests performed on the specific composite samples, along with their results are summarized in **Table 3-4** and **Table 3-5**, respectively. The complete laboratory testing reports for the geotechnical and hydrological tests are provided in **Appendix D**.

4.0 SUMMARY AND CONCLUSIONS

This section presents a summary of the cover materials and ore body investigation results completed at the Ballard Site. Evaluation of the geology and ore body size and orientation based on the exploration borings is discussed first. This is followed by comparison of the geochemical, agronomic, and geotechnical laboratory results from the overburden material to screening criteria such as background values and soil cover suitability parameters.

4.1 DRILLING EXPLORATION

The 2016 exploration program at the Ballard Site verified the extent of three potential ore bodies. One is located to the southeast of the Middle and West Ballard pits (MMP036 and MMP035). The second is a southern extension of the East Ballard pit (MMP037) and the third is located in the northeast corner of the property (south of MMP039). Water was encountered in a few boreholes drilled into the Meade Peak Member at depths between 62 and 300 feet bgs. Cross-sections of the ore body based on the recent drilling program are provided in **Appendix F**.

Ore beds of the Meade Peak Member of the Phosphoria Formation at the Ballard Site occur along both limbs of an anticline that plunges gently to the southeast. The limbs are offset by normal faults with offsets ranging from insignificant distances to several hundred feet. The east limb is cut by many small scale east dipping faults with block widths varying from 25 to 50 feet to as much as 535 feet. The west limb has several significant west dipping faults that are approximately 500 feet across that collectively affect a length of about 1,500 feet of the West and Middle Ballard pits. Average Phosphoria Formation bed thicknesses along the east limb are 26 feet (Lower Ore) and 16 feet (Upper Ore). The Phosphoria Formation on the west limb has average bed thicknesses of 26.5 feet (Lower Ore) and 14.5 feet (Upper Ore).

A secondary objective of the exploration drilling included logging the thickness of waste rock and overburden material in areas of the Site. As summarized in **Table 2-1** and indicated on the logs in **Appendix A**, the thickness of waste rock ranged between 10 and 76 feet and the thickness of overburden ranged between 15 and 176 feet.

4.2 GEOCHEMICAL SUMMARY

Geochemical tests were performed to obtain information on the geochemical properties of the alluvium, Dinwoody Formation, and Rex Chert Member for use as cover or backfill materials during the RA.

4.2.1 Whole Rock and Soil Chemistry Testing

The whole rock elemental concentrations from the Dinwoody Formation, Rex Chert Member and alluvium soil samples were compared to background values calculated based on soil data collected in 2009 and 2014 (MWH/Stantec, 2015). As shown in **Table 3-2**, three samples exceeded the arsenic background value, and one sample exceeded each of the selenium and uranium background values out of a total of 42 samples (37 primary and five duplicate samples).

- The exceedance of the arsenic background value (15.6 milligrams per kilogram [mg/kg]) was reported in single samples collected from each of the three geologic units. The arsenic concentrations in these samples were 24.6 mg/kg in alluvium sample SB012-GT (0-27), 19.0 mg/kg in Dinwoody Formation sample TP-6 (7-10), and 26.6 mg/kg in Rex Chert Member sample RC-03V1 (20-30). Note that the duplicate sample collected from the Dinwoody Formation sample, TP-6 (7-10), reported a concentration of 12.9 mg/kg, which is below the background value.
- The single selenium exceedance of 29.2 mg/kg was slightly above the background value (29.0 mg/kg) and was reported in alluvium soil boring, SB-12GT (0-27). This same soil boring also reported an exceedance of the arsenic background value.
- The uranium background value of 36.0 mg/kg was slightly exceeded in a single Rex Chert Member sample RC-03V1 (20-30) at a value of 36.6 mg/kg. The arsenic concentration in this sample also exceeded its background value.

Summary statistics (range and mean ± standard deviation) for the whole rock and soil concentrations from each geologic unit is provided in **Table 4-1**.

Based on the results of the whole rock elemental analysis and ABA testing (see Section 4.2.2 below) performed on Rex Chert Member and Dinwoody Formation samples and the soil chemistry tests performed on the alluvium samples, SPLP tests were run on select samples. The SPLP test results are discussed in Section 4.2.3.

4.2.2 ABA Testing

The ABA testing as summarized in **Table 4-2** was used to identify any potentially acid generating rock from the Dinwoody Formation or Rex Chert Member. There are several metrics for evaluating ABA data. The net neutralization potential (NNP) is the difference of ANP and AGP (i.e., ANP – AGP). Positive values indicate a net neutralizing rock, and negative values indicate potentially acid generating rock. The classification scheme presented in USEPA (2003) classifies NNP > 20 T $CaCO_3$/kT [1] as potentially acid neutralizing, NNP < - 20 T $CaCO_3$/kT as potentially acid generating, and NNP between 20 and -20 T $CaCO_3$/kT as uncertain. Based on this classification, seven of the 27 samples (including duplicates) fell into the uncertain classification with the remainder being acid neutralizing (**Table 4-2**). Of the uncertain samples, only one sample, RC-24V1 (102-112), had a negative NNP of -5.6 indicating the sample was potentially net acid generating.

The classification using the neutralization potential ratio (NPR) in USEPA (2003) is as follows:

- NPR of <1 = Likely acid rock drainage (ARD) generating
- NPR 1 of 2 = Possibly ARD generating
- NPR 2 of 4 = Low ARD potential
- NPR of >4 = No ARD potential

Based on this classification, all but five samples had no potential for ARD generation. Four samples had low ARD potential, and only one had likely ARD potential [RC-24V1 (102-112)] consistent with the NNP classification (**Table 4-2**).

The sulfide concentration is also a consideration in classifying acid generating potential of rock, especially non-mineralized rock and soil. For samples with low carbonate and sulfur content, both NNP and NPR can fall into uncertain or even acid generating classifications based on very low absolute concentrations of acid generating sulfide sulfur. However, with low sulfide sulfur, acid generation may never develop, or if it develops, it is not sustained. As indicated in USEPA (2003),

[1] T $CaCO_3$/kT = ton of calcium carbonate per 1000 tons of rock. The unit is fundamentally part per thousand (ppt) and is equivalent to tonnes $CaCO_3$/kilotonnes and kg $CaCO_3$/ metric tonnes, that are also used when reporting ABA data.

rock with <0.3% sulfide and paste pH[2] >5.5 has no potential for ARD, with exceptions per USEPA (2003).

The RC-24V1 (102-112), which was the only sample classified with a likely potential for ARD by both NNP and NPR metrics, has a sulfide sulfur concentration of 2.95%. Of the six other samples classified as uncertain by the NNP measure, none had greater than 0.3% sulfide sulfur, and five of these samples had less than 0.05% sulfide sulfur. There were two Rex Chert Member samples from boring RC21-V1 (27-37) and (107-117) that had NPR that classified the samples as having low ARD potential (**Table 4-2**). These samples had greater than 0.3% sulfide sulfur (1.57 and 1.11%). However, both had NNP values that are acid neutralizing.

It is observed that sample RC-24V1 (102-112) is the only sample that is not net neutralizing, and by its NPR value, is likely to generate ARD. This sample was collected in the 102 to 112 feet below the ground surface. It is very unlikely that Rex Chert Member from this depth and at this location will be used for cover.

Based on this testing, other technical literature, and conditions observed at Ballard Site and other phosphate mine sites in SE Idaho, neither the Dinwoody Formation nor Rex Chert Member rocks at the Ballard Site are likely to be ARD generators. It appears that on an overall, bulk basis, the Dinwoody Formation at the Site is less likely to have potentially ARD generating rock, when compared to the Rex Chert Member. The Dinwoody Formation contains some limestone, and this is reflected in samples that have relatively high ANP (> 150 T $CaCO_3$/kT). Because of this and as indicated by the ABA results, the bulk (average) acid neutralizing potential of the unit is likely to be highly net neutralizing based on the collected samples. Based on this round of sampling and ABA testing, the bulk neutralizing potential of the Rex Chert Member is lower and less consistent when compared to the Dinwoody Formation. However, it appears that the bulk character of Rex Chert Member would also be net neutralizing.

4.2.3 SPLP Testing

SPLP testing was used to evaluate whether constituents have the potential to leach from the Site backfill and cover materials at concentrations that may affect water quality. SPLP testing evaluated

[2] Paste pH measurements were only available for the alluvium samples. Paste pH on fresh, unweathered rock is not a reliable indicator of the potential pH in the surficial environment. Sulfidic rocks will often have a neutral pH until exposed to oxygen. Therefore, paste pH was not run on the rock samples obtained by drilling.

the potential release of arsenic, cadmium, and selenium (Site groundwater and surface water contaminants of concern and contaminants of ecological concern [COCs/COECs]) from backfill and cover materials from the alluvium, Dinwoody Formation, and Rex Chert Member when exposed to simulated rainwater. Measured COC/COEC concentrations were compared to surface water and groundwater criteria as shown in **Table 3-2**.

With the exception of three samples (two from the Dinwoody Formation and one from the Rex Chert Member), the remaining 11 SPLP sample results were below the surface water and groundwater standards for arsenic, cadmium, and selenium. The samples that reported selenium concentration that exceeded its surface water criteria of 0.0031 mg/L are as follows:

- Dinwoody Formation RC-07GT (4-21) – 0.0051 mg/L
- Dinwoody Formation TP-14 (3-7) – 0.0089 mg/L
- Rex Chert Member RC-11 (42-47) (57-62) – 0.0091 mg/L

The elevated concentrations of SPLP selenium do not correlate with elevated whole rock selenium concentrations (**Table 3-2**). The elevated concentrations likely represent a first flush of soluble minerals, and might not represent a long-term selenium source.

4.3 AGRONOMIC SUMMARY

Agronomic properties of the soil were evaluated to assess their viability to sustain vegetation. Wyoming's *Department of Environmental Quality Land Quality Division Guideline No. 1A* (WDEQ, 2015) was used to provide screening values for the agronomic properties and for evaluating the suitability of the proposed borrow soil for use in the construction of the proposed ET cover. This document provides guidance on whether a given topsoil is suitable, marginally suitable, and/or non-suitable based on specific soil chemistry parameters. A summary of these comparison values used in the evaluation are presented in **Table 4-3**.

Comparing some of the results of agronomic testing presented in **Table 3-3** with the screening values provided in **Table 4-3** indicates that all the results were classified as suitable or marginal. The only marginal characterization was based on the percentage of coarse fragments in the samples. Material used for the topsoil in the cover system can be blended or selected to minimize the percentage of coarse fragments. As a result, the soil for all the parameters is suitable as top soil.

However, nitrogen levels listed in **Table 3-3** indicate fairly low concentrations and therefore the soil may require nitrogen fertilizers to help with the establishment of vegetation on any cover system. In addition, phosphorus levels are high which would be expected given the close proximity to phosphate ore deposits. These findings are similar to the internal 2014 investigation of a borrow source area south of the Ballard Mine as documented in the *Ballard Borrow Source Area Investigation Report* (MWH/Stantec, 2014). A copy of this investigation report is provided in **Appendix F**.

4.4 GEOTECHNICAL SUMMARY

The main purpose of the geotechnical and hydrological testing was to provide data to evaluate the suitability of soils in the area for use as cover material on regraded surfaces during remediation. This on-Site evaluation supplements the geotechnical investigation of a potential borrow source area south of the Ballard Site as documented in **Appendix F**. The key geotechnical and hydrological parameters used in evaluating the soils' suitability for cover and possibly as a backfill material are described below. The results of this comparison are summarized in **Table 4-4**.

- **Atterberg Limits** – Atterberg limits testing is a key index parameter used to assess a soil's susceptibility to form desiccation cracks associated with volumetric changes (shrinkage) induced by moisture fluctuations. Desiccation cracks can lead to preferential flow paths through the cover material resulting in undesirable increases in percolation rates. Numerous case studies have indicated that cover soils should have a plasticity index (PI) below 30% and a liquid limit (LL) below 50% to limit desiccation cracking (ITRC, 2003 and Chadwik et al., 1999).

- **Grain-Size Distribution** – Grain size distribution is another index property that has a significant impact on the saturated and unsaturated hydraulic conductivity and moisture retention properties of the soil. In general, finer grained soils will have lower saturated and unsaturated conductivities and high moisture retention properties. It is desirable to have fines content between 35% and 50% (Chadwik et. al, 1999) of the total soil volume.

- **Dispersive Potential** – Dispersion potential is used to evaluate the erosive potential of the soil due to dispersion. Dispersive soils have a tendency to deflocculate when exposed to rain water significantly increasing the erosive potential of the soil. In general, soils being evaluated for cover materials should be characterized being between a Grade 1

(nondispersive) and 2 (intermediate dispersive) as determined by the Crumb Test and below 40% dispersion using the Double Hydrometer Test. The National Resource Conservation Society recommends that soils with % dispersion of 60 or greater be avoided or additional design features need to be incorporated into the design (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_024606.pdf).

The main reason for avoiding the use of dispersive soils as cover material is because of the increased propensity to create erosion features such as rills and gullies, channels on the surface of the cover and internal cavities and tunnels within the soil mass. These erosion features developed in dispersive soils lead to preferential flow pathways through the cover; thereby, potentially increasing infiltration rates through the cover. However, this should not preclude the use of dispersive soils as cover material. Deployment of straw wattles or coconut fiber mats and utilizing a seed mix that incorporates a cover crop can prevent most rilling.

- **Field Capacity** – For a bare soil, the field capacity is the maximum amount of water held by the soil against the force of gravity (Dingman, 2002). Soils with a higher field capacity may reduce the amount of downward percolation. Fine grained soils, which tend to have more porous space as a percent of total soil structure, have a greater field capacities than coarse grained soils. A thinner cover of finer grained soils can achieve the same water holding potential as a thicker cover of more course materials. Additionally, if more water is stored within the soil, it can be removed through evaporation to the air, transpiration to plants, or often a combination of the two processes. Field capacity is dependent to physical site conditions, but can be approximated as the soil water content at approximately -340 cm of suction (Dingman, 2002; Albright et al., 2004). The soil moisture at this pressure can be obtained by developing a soil water characteristic curve using the van Genuchten approximation.

- **Saturated and Unsaturated Hydraulic Conductivity** – Saturated hydraulic conductivity refers the hydraulic conductivity of a soil with a degree of saturation equal to 100% or a volumetric water content equal to the porosity and has a soil suction of zero. Unsaturated hydraulic conductivity refers to the hydraulic conductivity of a soil where the soil has a negative water pressure (referred to as soil suction). Saturated and unsaturated hydraulic conductivity are not mutually exclusive and for the most part for a given set of water

retention properties, the unsaturated hydraulic conductivity decreases with decreasing hydraulic conductivity values. Therefore, the saturated conductivity can be used as an indicator for soil unsaturated hydraulic conductivity.

For ET covers, the soil does not need to have hydraulic conductivities, similar to a compacted clay liner as water balance covers do not rely on a low permeability layer to reduce infiltration. For the purposes of this evaluation, a saturated hydraulic conductivity of less than $1x10^{-4}$ cm/sec is deemed suitable.

The evaluation presented above is meant to provide a preliminary screening of the suitability of the soil collected throughout the Site for use as a cover material and possibly for backfill. The evaluation has led to the following conclusions:

- Three soil samples were determined to be either moderately or highly dispersive. It is recommended that prior to, and during construction of any soil cover system, additional soil samples should be collected and tested to identify areas of dispersive soils. If dispersive soils are to be used as cover material, they should be capped with non-dispersive soils (e.g., top soil) or amended to reduce the dispersive potential (e.g., organic material and possibly gypsum).
- Six soils exhibited low saturated hydraulic conductivities, which is desirable for cover designs. These same soils also had field capacity values in excess of 20% retention by volume. However, it is recommended that infiltration modeling be performed to further evaluate the required thickness of the cover that would be necessary for the Site based on meteorological inputs.
- All soils had a plasticity index (or PIs) below the screening criteria of 30. This indicates that soils in these locations are not susceptible to desiccation cracking.
- Given the relatively high densities that can be achieved by compaction, as indicated from the Standard Proctor test results, and the very low organic content, these soils are suitable for use as backfill. This borrow material could be used as backfill to replace waste rock in areas where groundwater could be in contact to reduce the potential for leaching of COCs to groundwater.

4.5 CONCLUSIONS

Testing results for geochemical, agronomic, and geotechnical properties indicate mixed results for soil suitability as cover and backfill material. Geochemical testing including the SPLP results suggest that the Dinwoody Formation and Rex Chert Member materials are unlikely to generate acid or leach excess inorganics and could be used as backfill. Agronomic testing indicated that alluvial soil may be nitrogen deficient and may require fertilizers amendments to support plant growth. However, the alluvial soil appears to be generally suitable for plant growth. The geotechnical properties indicated the alluvial soil may be highly dispersive, but are typically suitable in terms of field capacity and hydraulic conductivity. These mixed results tend to be in favor of use as cover soil. Additional modeling should be used to verify the projected field conditions and amendment blends would need to be investigated prior to use of the alluvial soil during the RA.

5.0 REFERENCES

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Table 2-1 Borehole and Test Pit As-Built Summary

					Formations Encountered and Thicknesses (ft)							Drill and Sample Information		Geochemisty (as necessary) Sampling						Geotechnical (as necessary) Sampling			
Drill Hole ID	CERCLA Rationale (see key below)	Depth to Meade Peak Member (ft)	Depth to First Groundwater (ft)	Total Depth (ft) / inclination (deg) / bearing (deg)	Topsoil	Alluvium	Dump/Fill	Dinwoody Fm	Rex Chert Member	Meade Peak Member	Wells Fm	Drill Rig Type	Sample Intervals (ft)	Rex Chert Member		Dinwoody Fm		Alluvium		Geotechnical Parameters		Additional Geotechnical and Agronomic Parameters	
														ABA/ Whole Rock	SPLP (30% of samples)	ABA/ Whole Rock	SPLP (30% of samples)	Agronom	SPLP (30% of samples)	Alluvium	Dinwoody Fm	Alluvium	Dinwoody Fm
BLD16-01V1	CM/GW	--		201				**201**				RC	5-15			**1**	**1**						
BLD16-02V1	CM/GW	15	62	162		**15**				**147**		RC	NS										
BLD16-03V1	CM/GW	42		202					**42**	**138**	**22**	RC	20-30	**1**	**1**								
BLD16-04V1	EO/GW	42		162			**42**			**78**	**42**	RC	NS										
BLD16-05V1	EO/GW	150		292			**66**		**84**	**112**	**30**	RC	NS										
BLD16-06V1	CM/GW	76		182			**76**			**44**	**62**	RC	NS										
BLD16-07V1	CM/GW	122	35-40	139		**15**			**107**	**17**		RC	40-55	**1**	**1**								
BLD16-07V2	CM/GW	127	35-40	309		**10**			**117**	**84**	**98**	RC	NS										
BLD16-08V1	CM/GW	50		242					**50**	**174**	**18**	RC	NS										
BLD16-09V2	CM/GW	147	248	322		**15**			**132**	**157**	**18**	RC	NS										
BLD16-10V1	CM/GW	--		218	**5**			**213**				RC	5-22			**1**	**1**						
BLD16-11A1	CM/DT/GW	137		232 / 60 / 255		**15**			**122**	**73**	**22**	RC	NS										
BLD16-11V1	CM/DT/GW	117		152		**32**			**85**	**35**		RC	42-47, 57-62	**1**	**1**								
BLD16-12V1	CM/DT/GW	154		312			**44**		**110**	**132**	**26**	RC	NS										
BLD16-13A1	CM/GW	ND	ND	ND																			
BLD16-13V1	CM/GW	ND	ND	ND																			
BLD16-14A1	CM/GW	ND	ND	ND																			
BLD16-14V1	CM/GW	ND	ND	ND																			
BLD16-15A1	CM/GW	ND	ND	ND																			
BLD16-15V1	CM/GW	ND	ND	ND																			
BLD16-16A1	CM/GW	ND	ND	ND																			
BLD16-16V1	CM/GW	ND	ND	ND																			
BLD16-17A1	CM/GW	ND	ND	ND																			
BLD16-17V1	CM/GW	ND	ND	ND																			
BLD16-18A1	CM/GW	--		102 / 50 / 255			**10**				**92**	RC	NS										
BLD16-18V1	CM/GW	--		42			**15**				**27**	RC	NS										
BLD16-19A1	CM/GW	--		122 / 50 / 255		**15**			**57**		**50**	RC	NS										
BLD16-19V1	CM/GW	157	290	312		**15**			**142**	**135**	**20**	RC	42-52	**1**									
BLD16-20A1	CM/GW	ND	ND	ND																			
BLD16-20V1	CM/GW	ND	ND	ND																			
BLD16-21A1	CM/GW	--		182 / 50 / 310		**22**			**160**			RC	NS										
BLD16-21A2	CM/GW	176		212 / 50 /255		**22**			**154**	**36**		RC	NS										
BLD16-21V1	CM/GW	207	224	432		**5**			**202**	**207**	**18**	RC	27-37, 107-117	**2**									
BLD16-22A1	CM/GW	ND	ND	ND																			
BLD16-22V1	CM/GW	ND	ND	ND																			
BLD16-23A1	CM/GW	ND	ND	ND																			
BLD16-23V1	CM/GW	--		62			**22**				**40**	RC	NS										
BLD16-24A1	CM/GW	102		252 / 60 / 255		**5**			**97**	**132**	**18**	RC	NS										
BLD16-24V1	CM/GW	166		322		**15**			**151**	**134**	**22**	RC	27-42, 102-112	**2**									
BLD16-25A1	CM/GW	ND	ND	ND																			
BLD16-25V1	CM/GW	22		52			**22**			**8**	**22**	RC	NS										
BLD16-26A1	CM/GW	96		182 / 50 /255		**25**			**71**	**64**	**22**	RC	NS										
BLD16-26V1	CM/GW	138		302		**10**			**128**	**160**	**4**	RC	NS										
BLD16-27A1	CM/GW	122		312 / 55 / 255		**15**			**107**	**164**	**26**	RC	NS										
BLD16-27V1	CM/GW	92		302		**15**			**77**	**186**	**24**	RC	NS										
BLD16-28A1	CM/GW	110		322 / 60 / 255		**5**			**105**	**186**	**26**	RC	NS										
BLD16-28V1	CM/GW	102		262		**10**			**92**	**138**	**22**	RC	37-48	**1**	**1**								
BLD16-29A1	CM/GW	0		152 / 50 / 255						**130**	**22**	RC	NS										
BLD16-29V1	CM/GW	5		132		**5**				**111**	**16**	RC	NS										
BLD16-30A1	CM/GW	--		102 / 50 / 255							**102**	RC	NS										
BLD16-30V1	CM/GW	ND	ND	ND																			
BLD16-31A1	CM/GW	--		152 / 50 /255		**5**					**147**	RC	NS										
BLD16-31V1	CM/GW	--		152		**17**					**135**	RC	NS										
BLD16-32A1	CM/GW	--		102 / 50 / 255							**102**	RC	NS										
BLD16-32V1	CM/GW	--		102							**102**	RC	NS										
BLD16-33A1	CM/DT/GW	--		202 / 50 / 255			**10**				**192**	RC	NS										
BLD16-33V1	CM/DT/GW	22		170			**22**			**6**	**142**	RC	NS										
BLD16-34V1	CM/GW	37		152		**10**			**37**	**75**	**30**	RC	NS										

Table 2-1 Borehole and Test Pit As-Built Summary

					Formations Encountered and Thicknesses (ft)							Drill and Sample Information		Geochemisty (as necessary) Sampling						Geotechnical (as necessary) Sampling			
Drill Hole ID	CERCLA Rationale (see key below)	Depth to Meade Peak Member (ft)	Depth to First Groundwater (ft)	Total Depth (ft) / inclination (deg) / bearing (deg)	Topsoil	Alluvium	Dump/Fill	Dinwoody Fm	Rex Chert Member	Meade Peak Member	Wells Fm	Drill Rig Type	Sample Intervals (ft)	Rex Chert Member		Dinwoody Fm		Alluvium		Geotechnical Parameters		Additional Geotechnical and Agronomic Parameters	
														ABA/ Whole Rock	SPLP (30% of samples)	ABA/ Whole Rock	SPLP (30% of samples)	Agronom	SPLP (30% of samples)	Alluvium	Dinwoody Fm	Alluvium	Dinwoody Fm
BLD16-35V1	CM/GW	48		112			48			24	40	RC	NS										
BLD16-36A1	CM/GW	77		152 / 60 / 255			32		45	49	26	RC	NS										
BLD16-36V1	CM/GW	147		272			68		79	97	28	RC	NS										
BLD16-37V1	CM/GW	122		310					122	174	14	RC	NS										
BLD16-38V1	CM/GW	70		282		18			52	174	38	RC	52-62	1									
BLD16-39A1	CM/GW	96		332 / 75 / 83		27			69	206	30	RC	NS										
BLD16-40V1	CM/GW	54		202					54	126	22	RC	22-37	1	1								
BLD16-41V1	CM/GW	76		282		15			61	180	26	RC	NS										
BLD16-42A1	CM/GW	15		242 / 60 / 254			15			199	28	RC	NS										
BLD16-42V1	CM/GW	15		34			15			19		RC	NS										
BLD16-43V1	CM/GW	10		152			10			120	22	RC	NS										
BLD16-44V1	EO/GW	134		162						134	28	RC	NS										
BLD16-45V1	EO/GW	50		72						50	22	RC	NS										
BLD16-01GT	CM/GT	--	--	16.5	2.0			14.5				ODEX (SS)	1.5-6.5			0.5							
BLD16-01BGT	CM/GT	--	--	20.8	15 - FILL			6				ODEX (SS)	NS										
BLD16-02GT	CM/GT	--	--	16.5	2.0			14.5				ODEX (SS)	1.5-6.5			0.5							
BLD16-03GT	CM/GT	--	--	10.8	1.5			8				ODEX (SS)	4-21			0.5							
BLD16-04GT	CM/GT	ND	ND	ND																			
BLD16-05GT	CM/GT	10	12	35.8	5	5				26		ODEX (SS)	NS										
BLD16-06GT	CM/GT	--	24	25.2		10			15			ODEX (SS)	1.5-10					1		1		0.33	
BLD16-07GT	CM/GT	--	--	35.4	4			31				ODEX (SS)	0-4, 4-21			1	1	1		1	1	0.33	
BLD15-08GT	CM/GT	--	--	65.2	50-FILL			15				ODEX (SS)	NS										
BLD16-09GT	CM/GT	--	--	35.3	29.5-FILL			5				ODEX (SS)	8-12, 18-22					2					
BLD16-10GT	CM/GT	--	--	96.5	80-FILL			16.5				ODEX (SS)	NS									0.33	
BLD16-11GT	CM/GT	--	--	25		15		20				ODEX (SS)	NS										
BLD16-12GT	CM/GT	--	--	35		27		8				ODEX (SS)	0-27					1	1	1			
BLD16-13AL	SC	--	--	30	10-FILL	10		10				ODEX (SS)	0-25					1	1	1		0.5	
BLD16-14AL	SC	--	--	51.5	1.5	50						ODEX (SS)	0-15, 15-35					2	1	2		1	
BLD16-15AL	SC	--	47.5	50	1	49						ODEX (SS)	0-25, 25-50					2		2		0.5	
TP-01	SC	--	--	6.5	1.50				5			Test Pit	NS										
TP-02	SC	4	--	14.5	4					10.5		Test Pit	NS										
TP-03	SC	--	--	4				4				Test Pit	4-21			0.5							
TP-04	SC	--	--	10	2.5			7.5				Test Pit	NS										
TP-05	SC	--	--	13.5	1.5	3.5			8.5			Test Pit	NS										
TP-06	SC	--	--	13.5	5			8.5				Test Pit	2-5, 7-10			1		0.33	0.33	0.33		0.33	
TP-07	SC	8	--	12	1.5	6.5				4.0		Test Pit	2-5					0.33	0.33	0.33		0.33	
TP-08	SC	--	--	16	3.5			12.5				Test Pit	3.5-13			1					1		1
TP-09	SC	--	--	15	2	3		10				Test Pit	2-5, 7-14			1		0.33	0.33	0.33	1	0.33	
TP-10	SC	--	--	13.5	13.5 -FILL							Test Pit	NS										
TP-11	SC	--	--	15	15 - FILL							Test Pit	NS										
TP-12	SC	--	--	10.5	2	5		3.5				Test Pit	2-4, 7-9			1	1	1		1		1	
TP-13	SC	--	--	7.5	7.5 - FILL							Test Pit	NS										
TP-14	SC	--	--	15.5	1			14.5				Test Pit	3-7			1	1				1		1
TP-15	SC	--	--	16	2.5	13.5						Test Pit	2-13					0.5		0.5		0.5	
TP-16	SC	--	--	13	2.5	7.5			3			Test Pit	2-13					0.5		0.5		0.5	
TP-17	SC	--	--	11	11- FILL							Test Pit	NS										
TP-18	SC	5	--	5						5		Test Pit	NS										
TP-19	SC	--	--	11	6.5 - FILL			4.5				Test Pit	NS										
TP-20	SC	--	--	15	2	3		10				Test Pit	1-4, 12-14			1		1		1		1	`
SS-16 Grab	--	--	--	--								grab	surface			1							
												Estimated Sample Count		11	5	12	5	14	4	12	4	7	2

CM= Cover Material
DT= Dump thickness
EO= Exposed pit ore
GW= Ground Water
GT= GeoTech
ND= Not Drilled
NS= Not Sampled
SC= Soil Cover
SS= Split Spoon
TP= Test Pit
TBD= To be determine sample collection based on field observations and professional judgement
BLD16-13A1= orange drill hole ID not drilled
BLD16-45V1= blue ID added drill hole or test pit

Table 3-1 Summary of Investigation Sampling				
Formation/ Member	**Boring ID**	**Sample ID (Sample Depth -ft bgs)**	**Tests[1]**	**Comments**
Geochemical Sampling				
Dinwoody	BLD16-01V1	RC-01V1 (5-15)	Whole Rock metals/ABA/SPLP	
	BLD16-10V1	RC-10V1 (5-22)	Whole Rock metals/ABA/SPLP	Duplicate
	BLD16-01GT / 02GT	SB-01_02GT (1.5-6.5)	Whole Rock metals/ABA	Composite of borings SB-01GT and SB-02GT, Duplicate
	BLD16-07GT	SB-07GT (4-21)	Whole Rock metals/ABA/SPLP	
	BLD16-03GT / TP16-3	SB-03_TP-3 (1-5)	Whole Rock metals/ABA	Composite of test pit TP-3 and soil boring SB-03GT
	TP16-6	TP-6 (7-10)	Whole Rock metals/ABA	Duplicate
	TP16-8	TP-8 (3.5-13)	Whole Rock metals/ABA	
	TP16-9	TP-9 (7-14)	Whole Rock metals/ABA	
	TP16-12	TP-12 (7-9)	Whole Rock metals/ABA/SPLP	Duplicate SPLP
	TP16-14	TP-14 (3-7)	Whole Rock metals/ABA/SPLP	
	TP16-20	TP-20 (12-14)	Whole Rock metals/ABA	Duplicate
	SS-16	SS-16 (grab)	Whole Rock metals/ABA	
Rex Chert	BLD16-03V1	RC-03V1 (20-30)	Whole Rock metals/ABA/SPLP	
	BLD16-07V1	RC-07V1 (40-55)	Whole Rock metals/ABA/SPLP	
	BLD16-11V1	RC-11V1 (42-47) (57-62)	Whole Rock metals/ABA/SPLP	
	BLD16-19V1	RC-19V1 (42-52)	Whole Rock metals/ABA	
	BLD16-21V1	RC-21V1 (27-37)	Whole Rock metals/ABA	
	BLD16-21V1	RC-21V1 (107-117)	Whole Rock metals/ABA	
	BLD16-24V1	RC-24V1 (27-42)	Whole Rock metals/ABA	
	BLD16-24V1	RC-24V1 (102-112)	Whole Rock metals/ABA	
	BLD16-28V1	RC-28V1 (37-48)	Whole Rock metals/ABA/SPLP	
	BLD16-38V1	RC-38V1 (52-62)	Whole Rock metals/ABA	
	BLD16-40V1	RC-40V1 (22-37)	Whole Rock metals/ABA/SPLP	Duplicate SPLP
Alluvium	BLD16-12GT	SB-12GT (0-27)	SPLP metals	
	BLD16-13AL	SB-13AL (0-25)	SPLP metals	

Table 3-1 Summary of Investigation Sampling				
Formation/ Member	**Boring ID**	**Sample ID (Sample Depth -ft bgs)**	**Tests[1]**	**Comments**
	BLD16-14AL	SB-14AL (15-35)	SPLP metals	
	TP16-6, TP16-7, TP16-9	TP-6_7_9 (2-5)	SPLP metals	Composite of test pits TP-6, TP-7 and TP-9
Geotechnical Sampling				
Alluvium	BLD16-06GT	SB-06GT (1.5-10)	Geotechnical parameters subset	
	BLD16-07GT	SB-07GT (0-4)	Geotechnical parameters subset	
	BLD16-12GT	SB-12GT (0-27)	Geotechnical parameters subset	
	BLD16-13AL	SB-13AL (0-25)	Geotechnical parameters subset	
	BLD16-14AL	SB-14AL (0-15)	Geotechnical parameters subset	
	BLD16-14AL	SB-14AL (15-35)	Geotechnical parameters subset	
	BLD16-15AL	SB-15AL (0-25)	Geotechnical parameters subset	
	BLD16-15AL	SB-15AL (25-50)	Geotechnical parameters subset	
	TP16-6, TP16-7, TP16-9	TP-6_7_9 (2-5)	All geotechnical parameters	Composite of test pits TP-6, TP-7 and TP-9
	TP16-12	TP-12 (2-4)	All geotechnical parameters	
	TP16-15, TP16-16	TP-15_16 (2-13)	All geotechnical parameters	Composite of test pits TP-15 and TP-16
	TP16-20	TP-20 (1-4)	All geotechnical parameters	
	BLD16-06GT BLD16-07GT BLD16-12GT	SB-6_7_12GT (0-27)	Proctor/Permeability/SWC/ Double Dispersion	Composite of borings SB-6GT, SB-7GT, and SB-12GT
	BLD16-13AL BLD16-15AL	SB-13_15AL (0-50)	Proctor/Permeability/SWC/ Double Dispersion	Composite of borings SB-13AL and SB-14 AL
	BLD16-14AL	SB-14AL (0-35)	Proctor/Permeability/SWC/ Double Dispersion	Composite of intervals of boring SB-14AL
Dinwoody	BLD16-07GT	SB-07GT (4-21)	Geotechnical parameters subset	
	TP16-8	TP-8 (3.5-13)	All geotechnical parameters	
	TP16-9	TP-9 (7-14)	Geotechnical parameters subset	
	TP16-14	TP-14 (3-7)	All geotechnical parameters	

Table 3-1 Summary of Investigation Sampling				
Formation/ Member	**Boring ID**	**Sample ID (Sample Depth -ft bgs)**	**Tests[1]**	**Comments**
Agronomic/Soil Chemistry				
Alluvium	BLD16-06GT	SB-06GT (1.5-10)	Ag parameters and metals	
	BLD16-07GT	SB-07GT (0-4)	Ag parameters and metals	
	BLD16-09GT	SB-09GT (8-12)	Ag parameters and metals	Duplicate
	BLD16-09GT	SB-09GT (18-22)	Ag parameters and metals	
	BLD16-12GT	SB-12GT (0-27)	Ag parameters and metals/SPLP	
	BLD16-13AL	SB-13AL (0-25)	Ag parameters and metals/SPLP	
	BLD16-14AL	SB-14AL (0-15)	Ag parameters and metals	
	BLD16-14AL	SB-14AL (15-35)	Ag parameters and metals/SPLP	
	BLD16-15AL	SB-15AL (0-25)	Ag parameters and metals	
	BLD16-15AL	SB-15AL (25-50)	Ag parameters and metals	
	TP16-6, TP16-7, TP16-9	TP-6_7_9 (2-5)	Ag parameters and metals/SPLP	Composite of test pits TP-6, TP-7 and TP-9
	TP16-12	TP-12 (2-4)	Ag parameters and metals	
	TP16-15, TP16-16	TP-15_16 (2-13)	Ag parameters and metals	Composite of test pits TP-15 and TP-16
	TP16-20	TP-20 (1-4)	Ag parameters and metals	

Notes:
ABA – Acid-Base Accounting
RC – reverse circulation boring
SB – ODEX boring
SPLP – synthetic precipitation leaching procedure
SWC – soil water characteristic test
TP – test pit
[1]Tests included - Whole Rock metals – arsenic, cadmium, selenium, and uranium
SPLP metals – arsenic, cadmium, and selenium
Geotechnical parameters subset – organic content, atterberg limits, USCS classification, specific gravity, grain-size distribution, hydrometers, crumb test
All geotechnical parameters – all subset parameters above in addition to standard proctor, permeability, soil water characteristic (SWC), and double dispersion
Ag parameters and metals – arsenic, boron, cadmium, calcium, cation exchange capacity, magnesium, molybdenum, phosphorus, potassium, selenium, uranium, conductivity, pH, total carbon, total organic carbon, organic matter, saturation percent, sulfur, nitrate as N, nitrate/nitrite, nitrite as N, and nitrogen, ammonia

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	SB-06GT	SB-07GT	SB-09GT	SB-09GT Dup
	Location Identification	SB-06GT	SB-07GT	SB-09GT	SB-09GT Dup
	Depth (ft)	1.5 - 10	0 - 4	8 - 12	8 - 12
	Unit	Alluvium	Alluvium	Alluvium	Alluvium
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**7.2**	**6.1**	**6.9**	**6.3**
Cadmium	41 [a]	**6.77**	**0.82**	**4.29**	**3.87**
Selenium	29 [a]	**2.21**	**0.22**	**2.16**	**3.01**
Uranium	36 [a]	**4.76**	**0.62**	**4.96**	**5.16**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	--	--	--	--
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	--	--	--	--
Acid-Base Potential (calc on Sulfur total)	--	--	--	--	--
Neutralization Potential as $CaCO_3$ (%)	--	--	--	--	--
Solids, Percent (%)	--	**86**	**88.3**	**87.5**	**87.7**
Sulfur Forms (%)					
Sulfur HCl Residue	--	--	--	--	--
Sulfur HNO3 Residue	--	--	--	--	--
Sulfur Organic Residual	--	--	--	--	--
Residual (%)					
Sulfur Pyritic Sulfide	--	--	--	--	--
Sulfur Sulfate	--	--	--	--	--
Sulfur	--	**0.02 F**	<0.01	<0.01	<0.01
Total Sulfur minus Sulfate	--	--	--	--	--
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	--	--	--	--
Cadmium	0.0006 / 0.005 [b]	--	--	--	--
Selenium	0.0031 / 0.05 [b]	--	--	--	--

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	SB-09GT	SB-12GT	SB-13AL	SB-14AL
	Location Identification	SB-09GT	SB-12GT	SB-13AL	SB-14AL
	Depth (ft)	18 - 22	0 - 27	0 - 25	0 - 15
	Unit	Alluvium	Alluvium	Alluvium	Alluvium
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**7.6**	**24.6**	**5.9**	**6.7**
Cadmium	41 [a]	**2.23**	**12.1**	**4.61**	**3.13**
Selenium	29 [a]	**0.74**	**29.2**	**3.29**	**0.68**
Uranium	36 [a]	**2.76**	**16.8**	**15.2**	**3.54**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	--	--	--	--
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	--	--	--	--
Acid-Base Potential (calc on Sulfur total)	--	--	--	--	--
Neutralization Potential as $CaCO_3$ (%)	--	--	--	--	--
Solids, Percent (%)	--	**83.9**	**79.8**	**90.1**	**83.6**
Sulfur Forms (%)					
Sulfur HCl Residue	--	--	--	--	--
Sulfur HNO3 Residue	--	--	--	--	--
Sulfur Organic Residual	--	--	--	--	--
Residual (%)					
Sulfur Pyritic Sulfide	--	--	--	--	--
Sulfur Sulfate	--	--	--	--	--
Sulfur	--	<0.01	**0.07 F**	**0.02 F**	<0.01
Total Sulfur minus Sulfate	--	--	--	--	--
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	--	**.0006 F**	**0.0027**	--
Cadmium	0.0006 / 0.005 [b]	--	<0.0001	**0.0005**	--
Selenium	0.0031 / 0.05 [b]	--	**0.0003**	**0.001**	--

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	SB-14AL	SB-15AL	SB-15AL
Location Identification		SB-14AL	SB-15AL	SB-15AL
Depth (ft)		15 - 35	0 - 25	25 - 50
Unit		Alluvium	Alluvium	Alluvium
Metals Whole Rock/Soil (mg/kg)				
Arsenic	15.6 [a]	**11.1**	**10.3**	**4.8**
Cadmium	41 [a]	**3.75**	**1.38**	**0.74**
Selenium	29 [a]	**1.58**	**3.57**	**4.5**
Uranium	36 [a]	**4**	**4.25**	**3.23**
Acid-Base Analysis				
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	--	--	--
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	--	--	--
Acid-Base Potential (calc on Sulfur total)	--	--	--	--
Neutralization Potential as $CaCO_3$ (%)	--	--	--	--
Solids, Percent (%)	--	**82.7**	**93**	**93.3**
Sulfur Forms (%)				
Sulfur HCl Residue	--	--	--	--
Sulfur HNO3 Residue	--	--	--	--
Sulfur Organic Residual	--	--	--	--
Residual (%)				
Sulfur Pyritic Sulfide	--	--	--	--
Sulfur Sulfate	--	--	--	--
Sulfur	--	<0.01	<0.01	**0.01 F**
Total Sulfur minus Sulfate	--	--	--	--
Metals - SPLP (mg/L)				
Arsenic	0.0062 / 0.01 [b]	**0.0012**	--	--
Cadmium	0.0006 / 0.005 [b]	<0.0001	--	--
Selenium	0.0031 / 0.05 [b]	**0.0003**	--	--

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	TP-6_7_9	TP-12	TP-15_16	TP-20
	Location Identification	TP-6_7_9	TP-12	TP-15_16	TP-20
	Depth (ft)	2 - 5	2 - 4	2 - 13	1 - 4
	Unit	Alluvium	Alluvium	Alluvium	Alluvium
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**8.6**	**6.8**	**7.1**	**8.9**
Cadmium	41 [a]	**14.8**	**0.86**	**4.22**	**12.3**
Selenium	29 [a]	**2.14**	**0.24**	**3.44**	**4.22**
Uranium	36 [a]	**11.2**	**0.68**	**5.87**	**11.7**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	--	--	--	--
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	--	--	--	--
Acid-Base Potential (calc on Sulfur total)	--	--	--	--	--
Neutralization Potential as $CaCO_3$ (%)	--	--	--	--	--
Solids, Percent (%)	--	**88.3**	**91.4**	**85.8**	**91.3**
Sulfur Forms (%)					
Sulfur HCl Residue	--	--	--	--	--
Sulfur HNO3 Residue	--	--	--	--	--
Sulfur Organic Residual	--	--	--	--	--
Residual (%)					
Sulfur Pyritic Sulfide	--	--	--	--	--
Sulfur Sulfate	--	--	--	--	--
Sulfur	--	<0.01	<0.01	**0.01 F**	**0.03 F**
Total Sulfur minus Sulfate	--	--	--	--	--
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	**.0011 H**	--	--	--
Cadmium	0.0006 / 0.005 [b]	**.0004 FH**	--	--	--
Selenium	0.0031 / 0.05 [b]	**.0005 H**	--	--	--

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	RC-01V1	RC-10V1	RC-10V1 Dup	SB-01_02GT
	Location Identification	RC-01V1	RC-10V1	RC-10V1 Dup	SB-01_02GT
	Depth (ft)	5 - 15	5 - 22	5 - 22	1.5 - 6.5
	Unit	Dinwoody	Dinwoody	Dinwoody	Dinwoody
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**12.1**	**6.1**	**5.6**	**6.2**
Cadmium	41 [a]	**0.82**	**0.68**	**0.61**	**0.65**
Selenium	29 [a]	**0.24**	**0.32**	**0.25**	**0.18**
Uranium	36 [a]	**0.66**	**0.52**	**0.47**	**0.91**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	<0.31	<0.31	<0.31	<0.31
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	**168**	**301**	**306**	**98**
Acid-Base Potential (calc on Sulfur total)	--	**168**	**301**	**306**	**98**
Neutralization Potential as $CaCO_3$ (%)	--	**16.8**	**30.1**	**30.6**	**9.8**
Solids, Percent (%)	--	**78.6**	**84.9**	**87.4**	**85.9**
Sulfur Forms (%)					
Sulfur HCl Residue	--	<0.01	<0.01	<0.01	<0.01
Sulfur HNO3 Residue	--	<0.01	<0.01	<0.01	<0.01
Sulfur Organic Residual	--	<0.01	<0.01	<0.01	<0.01
Residual (%)					
Sulfur Pyritic Sulfide	--	<0.01	<0.01	<0.01	<0.01
Sulfur Sulfate	--	<0.01	<0.01	<0.01	<0.01
Sulfur	--	<0.01	<0.01	<0.01	<0.01
Total Sulfur minus Sulfate	--	<0.01	<0.01	<0.01	<0.01
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	**0.0015**	**0.0014**	--	--
Cadmium	0.0006 / 0.005 [b]	<0.0001	<0.0001	--	--
Selenium	0.0031 / 0.05 [b]	<0.0001	**0.0002 F**	--	--

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Criteria	SB-01_02GT Dup	SB-03_TP-3	SB-07GT	TP-6
	Location Identification	SB-01_02GT Dup	SB-03_TP-3	SB-07GT	TP-6
	Depth (ft)	1.5 - 6.5	1 - 5	4 - 21	7 - 10
	Unit	Dinwoody	Dinwoody	Dinwoody	Dinwoody
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**6.5**	**5.5**	**6.4**	**19**
Cadmium	41 [a]	**0.64**	**0.91**	**3.57**	**18.5**
Selenium	29 [a]	**0.2**	**0.35**	**6.58**	**0.89**
Uranium	36 [a]	**0.79**	**1.02**	**3.96**	**7.02**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	<0.31	<0.31	**1.88 F**	**0.63 F**
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	**85**	**161**	**40**	**32**
Acid-Base Potential (calc on Sulfur total)	--	**85**	**161**	**38.1**	**31.4**
Neutralization Potential as $CaCO_3$ (%)	--	**8.5**	**16.1**	**4**	**3.2**
Solids, Percent (%)	--	**86**	**90**	**93.9**	**81.7**
Sulfur Forms (%)					
Sulfur HCl Residue	--	<0.01	<0.01	**0.04 F**	<0.01
Sulfur HNO3 Residue	--	<0.01	<0.01	**0.02 F**	<0.01
Sulfur Organic Residual	--	<0.01	<0.01	**0.02 F**	<0.01
Residual (%)					
Sulfur Pyritic Sulfide	--	<0.01	<0.01	**0.02 F**	<0.01
Sulfur Sulfate	--	<0.01	<0.01	**0.02 F**	**0.02 F**
Sulfur	--	<0.01	<0.01	**0.06 F**	**0.02 F**
Total Sulfur minus Sulfate	--	<0.01	<0.01	**0.04 F**	<0.01
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	--	--	**0.0016**	--
Cadmium	0.0006 / 0.005 [b]	--	--	**0.0001 F**	--
Selenium	0.0031 / 0.05 [b]	--	--	**0.0051**	--

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	TP-6 Dup	TP-8	TP-9	TP-12
	Location Identification	TP-6 Dup	TP-8	TP-9	TP-12
	Depth (ft)	7 - 10	3.5 - 13	7 - 14	7 - 9
	Unit	Dinwoody	Dinwoody	Dinwoody	Dinwoody
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**12.9**	**6.7**	**3.9**	**12**
Cadmium	41 [a]	**2.43**	**0.53**	**0.51**	**0.73**
Selenium	29 [a]	**0.5**	**0.43**	**0.45**	**0.84**
Uranium	36 [a]	**1.24**	**0.68**	**0.52**	**0.59**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	<0.31	**23.1**	**30.9**	**0.63 F**
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	**20**	**170**	**169**	**180**
Acid-Base Potential (calc on Sulfur total)	--	**20**	**147**	**138**	**179**
Neutralization Potential as $CaCO_3$ (%)	--	**2**	**17**	**16.9**	**18**
Solids, Percent (%)	--	**80.1**	**96.4**	**98.4**	**88.7**
Sulfur Forms (%)					
Sulfur HCl Residue	--	<0.01	**0.54**	**0.91**	<0.01
Sulfur HNO3 Residue	--	<0.01	**0.01 F**	**0.02 F**	<0.01
Sulfur Organic Residual	--	<0.01	**0.01 F**	**0.02 F**	<0.01
Residual (%)					
Sulfur Pyritic Sulfide	--	<0.01	**0.53**	**0.89**	<0.01
Sulfur Sulfate	--	<0.01	**0.2**	**0.08 F**	**0.02 F**
Sulfur	--	<0.01	**0.74**	**0.99**	**0.02 F**
Total Sulfur minus Sulfate	--	<0.01	**0.54**	**0.91**	<0.01
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	--	--	--	**0.0016**
Cadmium	0.0006 / 0.005 [b]	--	--	--	<0.0001
Selenium	0.0031 / 0.05 [b]	--	--	--	<0.0001

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	TP-12 Dup	TP-14	TP-20	TP-20 Dup
Location Identification		TP-12 Dup	TP-14	TP-20	TP-20 Dup
Depth (ft)		7 - 9	3 - 7	12 - 14	12 - 14
Unit		Dinwoody	Dinwoody	Dinwoody	Dinwoody
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	--	**6.8**	**7.3**	**6.4**
Cadmium	41 [a]	--	**0.64**	**1.41**	**1.33**
Selenium	29 [a]	--	**0.09 F**	**0.58**	**0.53**
Uranium	36 [a]	--	**0.58**	**1.27**	**1.69**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	--	<0.31	**4.38**	**7.81**
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	--	**288**	**221**	**233**
Acid-Base Potential (calc on Sulfur total)	--	--	**288**	**217**	**225**
Neutralization Potential as $CaCO_3$ (%)	--	--	**28.8**	**22.1**	**23.3**
Solids, Percent (%)	--	--	**95.3**	**89.4**	**92.3**
Sulfur Forms (%)					
Sulfur HCl Residue	--	--	<0.01	**0.09 F**	**0.17**
Sulfur HNO3 Residue	--	--	<0.01	<0.01	<0.01
Sulfur Organic Residual	--	--	<0.01	<0.01	<0.01
Residual (%)					
Sulfur Pyritic Sulfide	--	--	<0.01	**0.09 F**	**0.17**
Sulfur Sulfate	--	--	<0.01	**0.05 F**	**0.08 F**
Sulfur	--	--	<0.01	**0.14**	**0.25**
Total Sulfur minus Sulfate	--	--	<0.01	**0.09 F**	**0.17**
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	**0.0014**	**0.0005 F**	--	--
Cadmium	0.0006 / 0.005 [b]	<0.0001	<0.0001	--	--
Selenium	0.0031 / 0.05 [b]	<0.0001	**0.0089**	--	--

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	SS-16	RC-03V1	RC-07V1	RC-11V1
	Location Identification	SS-16	RC-03V1	RC-07V1	RC-11V1
	Depth (ft)	0 - 0.5	20 - 30	40 - 55	42 - 47/57 - 62
	Unit	Dinwoody	Rex Chert	Rex Chert	Rex Chert
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**8.5**	**26.6**	**6.7**	**5.8**
Cadmium	41 [a]	**0.61**	**1.87**	**0.88**	**1.13**
Selenium	29 [a]	**0.24**	**22.6**	**2.48**	**9.42**
Uranium	36 [a]	**0.55**	**36.6**	**2.65**	**2.71**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	<0.31	**7.19**	**0.94 F**	**32.5**
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	**30**	**15**	**16**	**129**
Acid-Base Potential (calc on Sulfur total)	--	**30**	**7.8**	**15.1**	**96.5**
Neutralization Potential as $CaCO_3$ (%)	--	**3**	**1.5**	**1.6**	**12.9**
Solids, Percent (%)	--	**81.5**	**78**	**90**	**92.5**
Sulfur Forms (%)					
Sulfur HCl Residue	--	<0.01	**0.17**	**0.02 F**	**1.01**
Sulfur HNO3 Residue	--	<0.01	**0.02 F**	**0.02 F**	**0.04 F**
Sulfur Organic Residual	--	<0.01	**0.02 F**	**0.02 F**	**0.04 F**
Residual (%)					
Sulfur Pyritic Sulfide	--	<0.01	**0.15**	<0.01	**0.97**
Sulfur Sulfate	--	<0.01	**0.06 F**	**0.01 F**	**0.03 F**
Sulfur	--	<0.01	**0.23**	**0.03 F**	**1.04**
Total Sulfur minus Sulfate	--	<0.01	**0.17**	**0.02 F**	**1.01**
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	--	**0.0015**	**0.001**	**0.0015**
Cadmium	0.0006 / 0.005 [b]	--	<0.0001	<0.0001	<0.0001
Selenium	0.0031 / 0.05 [b]	--	**0.0006**	**0.0011**	**0.0091**

Table 3-2
Geochemical Testing Results
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Analyte (Units)	Screening Critieria	RC-19V1	RC-21V1	RC-21V1	RC-24V1
	Location Identification	RC-19V1	RC-21V1	RC-21V1	RC-24V1
	Depth (ft)	42 - 52	27 - 37	107 - 117	27 - 42
	Unit	Rex Chert	Rex Chert	Rex Chert	Rex Chert
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**4.6**	**6.3**	**4.5**	**5.7**
Cadmium	41 [a]	**0.8**	**1.02**	**0.98**	**1.87**
Selenium	29 [a]	**4.9**	**12**	**12.5**	**9.18**
Uranium	36 [a]	**2.31**	**3.36**	**3.19**	**2.63**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	**0.63 F**	**51.6**	**38.8**	**1.25 F**
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	**81**	**151**	**114**	**40**
Acid-Base Potential (calc on Sulfur total)	--	**80.4**	**99.4**	**75.3**	**38.8**
Neutralization Potential as $CaCO_3$ (%)	--	**8.1**	**15.1**	**11.4**	**4**
Solids, Percent (%)	--	**86.9**	**91**	**93.8**	**90.7**
Sulfur Forms (%)					
Sulfur HCl Residue	--	**0.02 F**	**1.63**	**1.17**	**0.03 F**
Sulfur HNO3 Residue	--	**0.02 F**	**0.06 F**	**0.06 F**	**0.02 F**
Sulfur Organic Residual	--	**0.02 F**	**0.06 F**	**0.06 F**	**0.02 F**
Residual (%)					
Sulfur Pyritic Sulfide	--	<0.01	**1.57**	**1.11**	**0.01 F**
Sulfur Sulfate	--	<0.01	**0.02 F**	**0.07 F**	**0.01 F**
Sulfur	--	**0.02 F**	**1.65**	**1.24**	**0.04 F**
Total Sulfur minus Sulfate	--	**0.02 F**	**1.63**	**1.17**	**0.03 F**
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	--	--	--	--
Cadmium	0.0006 / 0.005 [b]	--	--	--	--
Selenium	0.0031 / 0.05 [b]	--	--	--	--

Table 3-2
Geochemical Testing Results
(Page 11 of 13)

Analyte (Units)	Screening Critieria	RC-24V1	RC-28V1	RC-38V1	RC-40V1
	Location Identification	RC-24V1	RC-28V1	RC-38V1	RC-40V1
	Depth (ft)	102 - 112	37 - 48	52 - 62	22 - 37
	Unit	Rex Chert	Rex Chert	Rex Chert	Rex Chert
Metals Whole Rock/Soil (mg/kg)					
Arsenic	15.6 [a]	**10.8**	**8.4**	**2**	**11.7**
Cadmium	41 [a]	**1.47**	**1.15**	**0.48**	**1.64**
Selenium	29 [a]	**22.8**	**7.79**	**1.9**	**16.9**
Uranium	36 [a]	**6.97**	**4.56**	**2.47**	**6.51**
Acid-Base Analysis					
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	**95.6**	**0.94 F**	**1.88 F**	**0.94 F**
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	**90**	**16**	**5**	**12**
Acid-Base Potential (calc on Sulfur total)	--	**-5.6**	**15.1**	**3.1**	**11.1**
Neutralization Potential as $CaCO_3$ (%)	--	**9**	**1.6**	**0.5**	**1.2**
Solids, Percent (%)	--	**87.5**	**84.6**	**93.2**	**89.7**
Sulfur Forms (%)					
Sulfur HCl Residue	--	**3.08**	**0.02 F**	**0.03 F**	**0.03 F**
Sulfur HNO3 Residue	--	**0.13**	**0.02 F**	<0.01	**0.03 F**
Sulfur Organic Residual	--	**0.13**	**0.02 F**	<0.01	**0.03 F**
Residual (%)					
Sulfur Pyritic Sulfide	--	**2.95**	<0.01	**0.03 F**	<0.01
Sulfur Sulfate	--	<0.01	**0.01 F**	**0.03 F**	<0.01
Sulfur	--	**3.06**	**0.03 F**	**0.06 F**	**0.03 F**
Total Sulfur minus Sulfate	--	**3.06**	**0.02 F**	**0.03 F**	**0.03 F**
Metals - SPLP (mg/L)					
Arsenic	0.0062 / 0.01 [b]	--	**0.0007 F**	--	**0.0027**
Cadmium	0.0006 / 0.005 [b]	--	<0.0001	--	<0.0001
Selenium	0.0031 / 0.05 [b]	--	**0.0006**	--	**0.0022**

Table 3-2
Geochemical Testing Results
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	Location Identification	RC-40V1 Dup
	Depth (ft)	22 - 37
	Unit	Rex Chert
Analyte (Units)	**Screening Critieria**	
Metals Whole Rock/Soil (mg/kg)		
Arsenic	15.6 [a]	--
Cadmium	41 [a]	--
Selenium	29 [a]	--
Uranium	36 [a]	--
Acid-Base Analysis		
Acid Generation Potential (calc on Sulfur total) (t CaCO3/Kt)	--	--
Acid Neutralization Potential (calc) (t CaCO3/Kt)	--	--
Acid-Base Potential (calc on Sulfur total)	--	--
Neutralization Potential as $CaCO_3$ (%)	--	--
Solids, Percent (%)	--	--
Sulfur Forms (%)		
Sulfur HCl Residue	--	--
Sulfur HNO3 Residue	--	--
Sulfur Organic Residual	--	--
Residual (%)		
Sulfur Pyritic Sulfide	--	--
Sulfur Sulfate	--	--
Sulfur	--	--
Total Sulfur minus Sulfate	--	--
Metals - SPLP (mg/L)		
Arsenic	0.0062 / 0.01 [b]	**0.0023**
Cadmium	0.0006 / 0.005 [b]	<0.0001
Selenium	0.0031 / 0.05 [b]	**0.0016**

Notes:

[a] Soil metals screening criteria is 95-95 UTL background threshold value (MWH, 2015)

[b] Surface water / Groundwater screening criteria. The surface water crieria are based on the State of Idaho surface water quality criteria and the USEPA 2016 NRWQC values. The groundwater critiera are based on Federal Maximum Contaminant Levels (MCLs).

SB	ODEX boring sample
TP	test pit sample
RC	Reverse circulation boring sample
mg/kg	milligrams per kilogram.
mg/l	milligrams per liter.
T CaCO3/Kt	Tons of calcium carbonate per kiloton.
Bold	Bolded result indicates positively identified compound.
	Blue shaded result indicates background level exceeded.
--	Not scheduled.
F	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
H	Sample holding time was exceeded, but the associated data are considered valid as reported.

Table 3-3 Agronomic Testing Results

Test	Sample ID and Depth Interval														
	SB-06GT (1.5-10)	**SB-07GT (0-4)**	**SB-09GT (8-12)**	**SB-09GT (18-22)**	**SB-09GT (18-22) duplicate**	**SB-12GT (0-27)**	**SB-13AL (0-25)**	**SB-14AL (0-15)**	**SB-14AL (15-35)**	**SB-15AL (0-25)**	**SB-15AL (25-50)**	**TP-6_7_9 (2-5)**	**TP-12 (2-4)**	**TP-15_16 (2-13)**	**TP-20 (1-4)**
Boron, soluble (M 6010B) (mg/kg)	0.18	0.20	0.07	<0.05	0.09	0.07	0.06	0.11	<0.05	0.13	0.19	<0.05	0.25	0.08	0.10
Calcium, soluble (M 6010B) (meq/L)	2.46	0.963	1.40	1.30	1.35	2.39	2.59	0.996	2.15	1.28	1.29	0.915	3.01	0.886	0.702
Cation Exchange Capacity (USDA No. 60 (19) (meq/100g)	20.1	22.5	14.6	17.1	13.4	18.0	9.58	19.5	17.8	10.3	5.77	18.6	21.9	15.3	17.4
Magnesium, soluble (M6010B) (meq/L)	0.633	0.611	0.563	0.382	0.539	0.656	0.778	1.89	1.25	0.413	0.392	0.529	0.279	0.568	0.655
Molybdenum, total (M 6020) (mg/kg)	2.9	2.4	7.9	5.5	6.0	18.7	4.3	1.9	2.0	3.1	1.2	4.0	0.4	2.5	6.2
Phosphorus, total (M 6010B) (mg/kg)	6470	1590	4130	2230	4330	21400	17500	4510	6560	3820	2460	9100	1200	4540	10900
Potassium, soluble (M 6010B) (meq/L)	0.145	0.251	0.230	0.0825	0.219	0.113	0.167	0.0456	0.0936	0.0812	0.0959	0.105	0.0843	0.161	0.198
Sodium, soluble (M 6010B) (meq/L)	0.171	0.0899	0.304	0.241	0.307	0.192	0.268	0.330	0.572	0.502	0.445	0.145	0.104	0.234	0.0878
Sodium Adsorption Ratio (calculation)	0.138	0.101	0.307	0.263	0.316	0.156	0.207	0.275	0.439	0.546	0.485	0.171	0.081	0.274	0.107
Conductivity (SM2510B) (mmhos/cm)	0.374	0.174	0.280	0.230	0.242	0.356	0.402	0.329	0.415	0.235	0.239	0.164	0.364	0.181	0.125
pH (EPA 600/2-78-054- 3.2.2) (s.u.)	7.0	6.5	7.3	7.3	7.5	7.3	6.9	8.0	7.7	6.9	7.0	6.7	7.5	7.0	7.0
Carbon, total (ASA No. 9 29-2.2.4) (%)	1.9	1.7	0.5	0.3	0.6	1.8	1.6	1.1	0.8	0.9	1.0	1.3	2.9	0.7	1.5
Carbon, total organic (ASA No. 9 29-2.2.4) (%)	1.4	1.4	0.4	0.3	0.5	1.2	1.4	0.2	0.2	0.8	0.9	1.1	1.2	0.6	1.3
Organic Matter (USDA No. 60) (%)	2.8	3.0	0.8	0.6	0.9	2.4	2.8	0.5	0.4	1.4	1.3	2.4	3.0	1.2	2.9
Saturation Percent (USDA No. 60) (%)	51.1	50.5	42.6	55.1	81.2	47.2	32.1	35.1	43.8	32.6	27.9	49.8	52.1	44.1	50.3
Solids (%)	86.0	88.3	87.5	83.9	87.7	79.8	90.1	83.6	82.7	93.0	93.3	88.3	91.4	85.8	91.3
Sulfur, total (ASTM D-4239- 85C) (%)	0.02	<0.01	<0.01	<0.01	<0.01	0.07	0.02	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	0.03
Nitrate as N (Calculation) (mg/kg)	3	<2	<2	<2	<2	4	<2	<2	<2	<2	<2	<2	3	<2	<2
Nitrate/Nitrite (M353.2) (mg/kg)	3	<2	<2	<2	<2	4	<2	<2	<2	<2	<2	<2	3	<2	<2
Nitrite as N (353.2) (mg/kg)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nitrogen, ammonia (M350.1) (mg/kg)	1	1	<1	1	<1	1	<1	<1	1	3	1	1	1	<1	<1
Coarse Fraction (%vol)	27	14				48	44	37	54	59	36	48	43	56	39

Table 3-3 Agronomic Testing Results															
Test	**Sample ID and Depth Interval**														
	SB-06GT (1.5-10)	**SB-07GT (0-4)**	**SB-09GT (8-12)**	**SB-09GT (18-22)**	**SB-09GT (18-22) duplicate**	**SB-12GT (0-27)**	**SB-13AL (0-25)**	**SB-14AL (0-15)**	**SB-14AL (15-35)**	**SB-15AL (0-25)**	**SB-15AL (25-50)**	**TP-6_7_9 (2-5)**	**TP-12 (2-4)**	**TP-15_16 (2-13)**	**TP-20 (1-4)**

ft – feet
mg/kg – milligrams per kilogram
meq/L – molar equivalent per liter
mmhos/cm – micromohs per centimeter
TP-6_7_9 – composite from TP16-6, TP16-7, and TP16-9 in the specified interval
TP-15_16 – composite from TP16-15 and TP16-16 in the specified interval

Table 3-4 Geotechnical Testing Results

	SB-06GT (1.5-10 ft)	SB-07GT (0-4 ft)	SB-12GT (0-27 ft)	SB-14AL (0-15 ft)	SB-14AL (15-35 ft)	SB-13AL (0-25 ft)	SB-15AL (0-25 ft)	SB-15AL (25-50 ft)	TP-6,7,9 (2-5 ft)	TP-12 (2-4 ft)	TP-15,16 (2-13 ft)	TP-20 (1-4 ft)	SB-07GT (4-21 ft)	TP-8 (3.5-13 ft)	TP-9 (7-14 ft)	TP-14 (3-7 ft)
	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Dinwoody	Dinwoody	Dinwoody	Dinwoody
Moisture Content (%) (ASTM D 2974)																
Organic Matter (%) (ASTM D 2974)	2.9	4.9	2.3	1.3	1.7	1.2	1.2	1.4	2.3	3.1	1.7	3.1	0.7	0.9	0.5	1.2
Atterberg Limits (ASTM 4318)																
Liquid Limit (LL) (%)	41	44	33	NV	32	32	NV	NV	37	38	36	41	31	33	30	41
Plastic Limit (PL) (%)	25	23	20	NV	18	17	NV	NV	18	21	18	16	17	19	18	25
Plastic Index (PI) (%)	16	21	13	NP	14	15	NP	NP	19	17	18	25	14	14	12	16
Unified Soil Classification (ASTM D2487)	Clayey Sand with Gravel (SC)	Sandy Lean Clay (CL)	Clayey Sand with Gravel (SC)	Silty Sand (SM)	Clayey Sand (SC)	Clayey Sand with Gravel (SC)	Silty Sand with Gravel (SM)	Silty Sand with Gravel (SM)	Clayey Sand with Gravel (SC)	Clayey Gravel with Sand (GC)	Clayey Sand with Gravel (SC)	Clayey Sand with Gravel (SC)	Clayey Sand with Gravel (SC)	Clayey Gravel with Sand (GC)	Poorly graded Gravel with Clay and Sand (GP-GC)	Clayey Gravel with Sand (GC)
Grain Size Distrib (ASTM D422)																
% Gravel	19	7	48	11	9	39	38	28	23	29	32	17	36	45	55	44
% Sand	32	33	14	65	68	48	49	59	31	27	39	37	49	42	33	43
% Fines	49	60	38	24	23	13	13	13	46	44	29	46	15	13	12	13
Specific Gravity (ASTM D854)	2.697	2.719	2.711	2.844	2.810	2.642	2.684	2.526	2.676	2.587	2.629	2.705	2.700	2.840	2.762	2.682
Hydrometer Analysis (ASTM D422)																
Double Hydrometer Dispersion Test (ASTM D4221-11) (% Dispersion)	62			NA		62			71	0	7	13	NA	17	NA	8
Crumb Test (ASTM D6572-12) Dispersive Classification	Highly Dispersive	Highly Dispersive	Dispersive	Non Dispersive	Non Dispersive	Dispersive	Highly Dispersive	Highly Dispersive	Dispersive	Non Dispersive	Non Dispersive	Non Dispersive	Non Dispersive	Non Dispersive	Non Dispersive	Non Dispersive
Standard Proctor Compaction Test (pcf) (ASTM D698 B)	110.8			114.2		115.8			108.2	105.6	115.2	109.9	NA	115.3	124.1	100.2
Permeability Falling Head (cm/sec) Average K (ASTM D5084)	4.4×10^{-5}			6.0×10^{-5}		1.8×10^{-3}			8.5×10^{-6}	5.0×10^{-4}	1.8×10^{-5}	9.8×10^{-6}	NA	9.5×10^{-4}	1.6×10^{-4}	3.1×10^{-3}
Soil Water Characteristic Testing – 8 Point (ASTM D5084)	See Table 3-5			See Table 3-5		See Table 3-5			See Table 3-5	See Table 3-5	See Table 3-5	See Table 3-5	NA	See Table 3-5	NA	See Table 3-5

Table 3-5 Summary of Geotechnical Testing and Van Genuchten Parameters							
Sample I.D. (Depth of Sample)		**Calculated, van Genuchten Parameters [a/]**					**Other Calculated Values**
	Ksat [b/] (cm/sec)	α [c/]	n [d/]	θ_r [e/]	θ_s [f/]	m	θ_{fc} [g/]
		(cm^{-1})		**(vol/vol)**	**(vol/vol)**		**(vol/vol)**
SB-6_7_12GT (0-27)	4.4E-05	0.00552	1.251	0.01	0.343	0.2058	0.2728
SB-13_15AL (0-50)	1.8E-03	0.00646	1.311	0.01	0.174	0.2402	0.1298
SB-14AL (0-35)	6.5E-05	0.00619	1.257	0.01	0.350	0.2062	0.2731
TP-6_7_9 (2-5)	8.5E-06	0.01091	1.245	0.01	0.387	0.1952	0.2763
TP-12 (2-4)	5.0E-04	0.00388	1.251	0.01	0.278	0.2052	0.2344
TP-15_16 (2-13)	1.8E-05	0.00802	1.225	0.01	0.335	0.1813	0.2592
TP-20 (1-4)	9.8E-06	0.00040	1.396	0.01	0.271	0.2845	0.2670
TP-8 (3.5-13)	9.5E-04	0.00226	1.274	0.01	0.265	0.2147	0.2377
TP-14 (3-7)	3.1E-03	0.00318	1.264	0.01	0.310	0.2066	0.2680
TP-09 (7-14)	1.6 E-04	--	--	--	--	--	--

Notes:
[a/] Calculated van Genuchten Parameters for SWCC testing (ASTM 6836)
[b/] K_{sat} = saturated hydraulic conductivity (ASTM D5084)
[c/] α = inverse of the air-entry value (or bubbling pressure)
[d/] n = pore size distribution index [dimensionless]
[e/] θ_r = residual water content
[f/] θ_s = saturated water content
[g/] θ_{fc} = field capacity water content

Table 4-1 Statistical Summary of Whole Rock and Soil Metals Data					
Geologic Formation	**Statistics**	**Arsenic (mg/kg)**	**Cadmium (mg/kg)**	**Selenium (mg/kg)**	**Uranium (mg/kg)**
Background Value		**15.6**	**41.0**	**29.0**	**36.0**
Alluvium	Minimum	4.8	0.74	0.22	0.62
	Maximum	24.6	14.8	29.2	16.8
	Average/Std Dev	8.6±4.7	5.1±4.5	4.1±7.1	6.3±5.0
Dinwoody Formation	Minimum	3.9	0.51	0.09	0.47
	Maximum	19.0	18.5	6.58	7.02
	Average/Std Dev	8.2±3.9	2.2±4.4	0.8±1.6	1.4±1.7
Rex Chert Member	Minimum	2.0	0.48	1.9	2.3
	Maximum	26.6	1.87	22.8	36.6
	Average/Std Dev	8.5±6.6	1.2±0.5	11.1±7.2	6.7±10.0

Table 4-2 Summary of ABA Data

Formation/Member	Sample Location	Sample ID	Total S	Sulfide S	AGP	ANP	NNP	NPR
Criteria				>0.3%			<20	<4
Dinwoody	BLD16-01V1	RC-01V1 (5-15)	<0.01	<0.01	<0.31	168	168	>168
	BLD16-10V1	RC-10V1 (5-22)	<0.01	<0.01	<0.31	301	301	>301
	BLD16-10V1	RC-10V1 (5-22) dup	<0.01	<0.01	<0.31	306	306	>306
	BLD16-01GT / 02GT	SB-01_02GT (1.5-6.5)	<0.01	<0.01	<1	98	98	>98
	BLD16-01GT / 02GT	SB-01_02GT (1.5-6.5) dup	<0.01	<0.01	<1	85	85	>85
	BLD16-07GT	SB-07GT (4-21)	0.06	0.02	1.88	40	38.1	21.3
	BLD16-03GT / TP16-3	SB-03_TP-3 (1-5)	<0.01	<0.01	<1	161	161	>161
	TP16-6	TP-6 (7-10)	0.02	<0.01	0.63	32	31.4	51
	TP16-6	TP-6 (7-10) dup	<0.01	<0.01	<1	20	20	>20
	TP16-8	TP-8 (3.5-13)	0.74	0.53	23.1	170	147	7.4
	TP16-9	TP-9 (7-14)	0.99	0.89	30.9	169	138	5.5
	TP16-12	TP-12 (7-9)	0.02	<0.01	0.63	180	179	286
	TP16-14	TP-14 (3-7)	<0.01	<0.01	<1	288	288	>288
	TP16-20	TP-20 (12-14)	0.14	0.09	4.38	221	217	50.5
	TP16-20	TP-20 (12-14) dup	0.25	0.17	7.81	233	225	29.8
	SS-16	SS-16 (grab)	<0.01	<0.01	<0.31	30	30	>30
Rex Chert	BLD16-03V1	RC-03V1 (20-30)	0.23	<0.01	7.19	15	7.8	2.1
	BLD16-07V1	RC-07V1 (40-55)	0.03	<0.01	0.94	16	15.1	17
	BLD16-11V1	RC-11V1 (42-47) (57-62)	1.04	0.97	32.5	129	96.5	4.0
	BLD16-19V1	RC-19V1 (42-52)	0.02	<0.01	0.63	81	80.4	128.6
	BLD16-21V1	RC-21V1 (27-37)	1.65	1.57	51.6	151	99.4	2.9
	BLD16-21V1	RC-21V1 (107-117)	1.24	1.11	38.8	114	75.3	2.9
	BLD16-24V1	RC-24V1 (27-42)	0.04	0.01	1.25	40	38.8	32.0
	BLD16-24V1	RC-24V1 (102-112)	3.06	2.95	95.6	90	-5.6	0.9
	BLD16-28V1	RC-28V1 (37-48)	0.03	<0.01	0.94	16	15.1	17
	BLD16-38V1	RC-38V1 (52-62)	0.06	0.03	1.88	5	3.1	2.7
	BLD16-40V1	RC-40V1 (22-37)	0.03	<0.01	0.94	12	11.1	13

ABA – acid base accounting, S – sulfur, AGP – acid generating potential, ANP – acid neutralizing potential, NNP – net neutralizing potential, NPR – neutralizing potential ratio

Shaded cells indicate criteria exceedance

Table 4-3 Agronomic Screening Properties[1]				
Parameter	**Suitable**	**Marginal[2]**	**Unsuitable**	**Results Average of all 15 Samples**
pH (s.u.)	5.5-8.5	5.0-5.5 8.5-9.0	<5.0 >9.0	*7.17 - Suitable*
EC (mmhos/cm)	0-8	8-12	>12.0	*0.274 - Suitable*
Saturation Percentage (%)	25-80	<25 >80	Not specified	*43.4 - Suitable*
Texture	Not specified	Clay, silty clay, sand	Not specified	*Clayey sand with gravel to silty sand and gravel – Suitable*
Sodium Adsorption Ratio	0-10	10-12[3] 10-15	>12[3] >15	*0.26 - Suitable*
Boron, soluble (mg/kg)	<5.0	Not specified	>5.0	*0.140 - Suitable*
Coarse Frag (% Vol.)	<25	25-35	>35	*46.4% - Unsuitable*

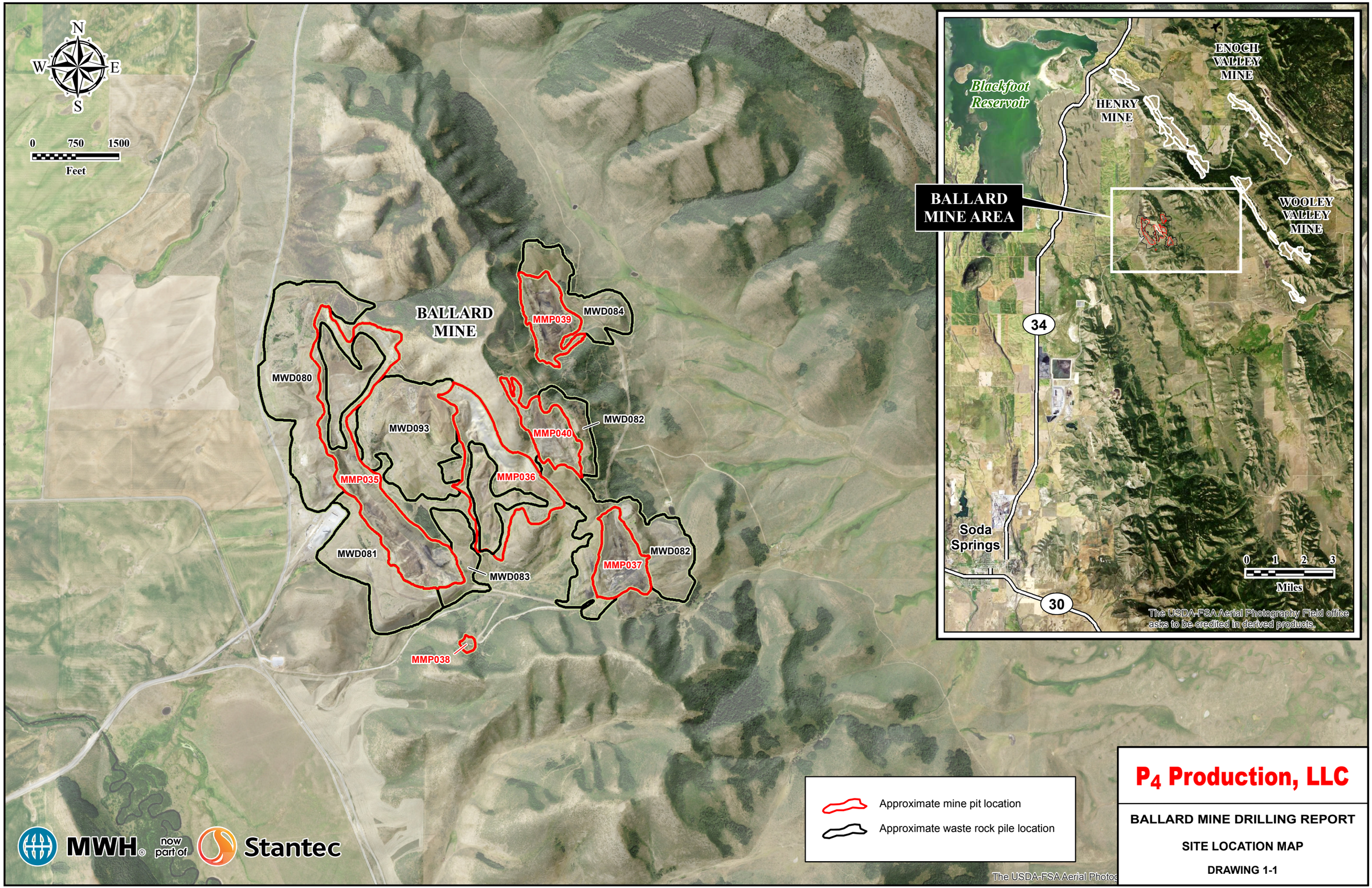
[1]Guidelines from Wyoming Department of Environmental Quality Land Quality Division Guideline 1A Topsoil and Subsoil, Last Revised August, 2015.

[2]Evaluated on an individual basis.

[3]For fine textured soils (Clay 40%)

Table 4-4 Summary of Suitability Assessment of Cover Material					
Sample ID	**Screening Parameters (screening values)**				
	Atterberg Limits (PI<30) (LL<50)	**Grain Size Distribution (Percent Fines>35%)**	**Dispersive Potential (Grade 1 or 2)**	**Field Capacity (θ_{FC})**	**Saturate ad Unsaturated Conductivities (K) (1E-4 cm/sec)**
SB-6_7_12GT (0-27) Alluvium	PI = 16.7 (average of samples) LL = 22.7 (average of sample) *Met screening criteria*	% Fines = 49 (average of samples) *Met screening criteria*	Crumb Test = Grade 3 to 4 *Soil is considered dispersive to highly dispersive.*	θ_{FC} = 0.2728	K = 4.4E-05 *Met screening criteria*
SB-13_15AL (0-50) Alluvium	PI = 14.5 (average of samples) LL = 32 (average of sample) *Met screening criteria*	% Fines = 13 (average of samples) *Does not meet screening criteria*	Crumb Test = Grade 3 to 4 *Soil is considered dispersive to highly dispersive.*	θ_{FC} = 0.1298	K = 1.8E-03 *Does not meet screening criteria*
SB-14AL (0-35) Alluvium	PI = 14 (average of samples) LL = 22.7 (average of sample) *Met screening criteria*	% Fines = 23.5 (average of samples) *Does not meet screening criteria*	Crumb Test = Grade 1 *Soil is considered non-dispersive*	θ_{FC} = 0.2731	K = 6.5E-05 *Met screening criteria*
TP-6_7_9 (2-5) Alluvium	PI = 19 LL = 37 *Met screening criteria*	% Fines = 46 *Met screening criteria*	Crumb Test = Grade 3 *Soil is considered dispersive.*	θ_{FC} = 0.2763	K = 8.5E-06 *Met screening criteria*
TP-12 (2-4) Alluvium	PI = 17 LL = 38 *Met screening criteria*	% Fines = 44 *Met screening criteria*	Crumb Test = Grade 1 *Soil is considered non-dispersive.*	θ_{FC} = 0.2344	K = 5.00E-04 *Does not meet screening criteria*

Table 4-4 Summary of Suitability Assessment of Cover Material					
Sample ID	**Screening Parameters (screening values)**				
	Atterberg Limits (PI<30) (LL<50)	**Grain Size Distribution (Percent Fines>35%)**	**Dispersive Potential (Grade 1 or 2)**	**Field Capacity (θ_{FC})**	**Saturate ad Unsaturated Conductivities (K) (1E-4 cm/sec)**
TP-15_16 (2-13) Alluvium	PI = 18 LL = 36 *Met screening criteria*	% Fines = 29 *Does not meet screening criteria*	Crumb Test = Grade 1 *Soil is considered non-dispersive.*	θ_{FC} = 0.2592	K = 1.8E-05 *Met screening criteria*
TP-20 (1-4) Alluvium	PI = 25 LL = 41 *Met screening criteria*	% Fines = 46 *Met screening criteria*	Crumb Test = Grade 1 *Soil is considered non-dispersive*	θ_{FC} = 0.2670	K = 9.8E-06 *Met screening criteria*
TP-8 (3.5-13) Dinwoody Fm.	PI = 14 LL = 33 *Met screening criteria*	% Fines = 13 *Does not meet screening criteria*	Crumb Test = Grade 1 *Soil is considered non-dispersive.*	θ_{FC} = 0.2377	K = 9.5E-04 *Met screening criteria*
TP-14 (3-7) Dinwoody Fm.	PI = 16 LL = 41 *Met screening criteria*	% Fines = 13 *Does not meet screening criteria*	Crumb Test = Grade 1 *Soil is considered non-dispersive.*	θ_{FC} = 0.2680	K = 3.1E-03 *Does not meet screening criteria*
TP-09 (7-14) Dinwoody Fm.	PI = 12 LL = 30 *Met screening criteria*	% Fines = 12 *Does not meet screening criteria*	Crumb Test = Grade 1 *Soil is considered non-dispersive.*	*Not Tested*	K = 3.00E-04 *Does not meet screening criteria*



P4 Production, LLC

BALLARD MINE DRILLING REPORT

SITE LOCATION MAP

DRAWING 1-1

DRAWN BY D. Severson

3 Mar 2017

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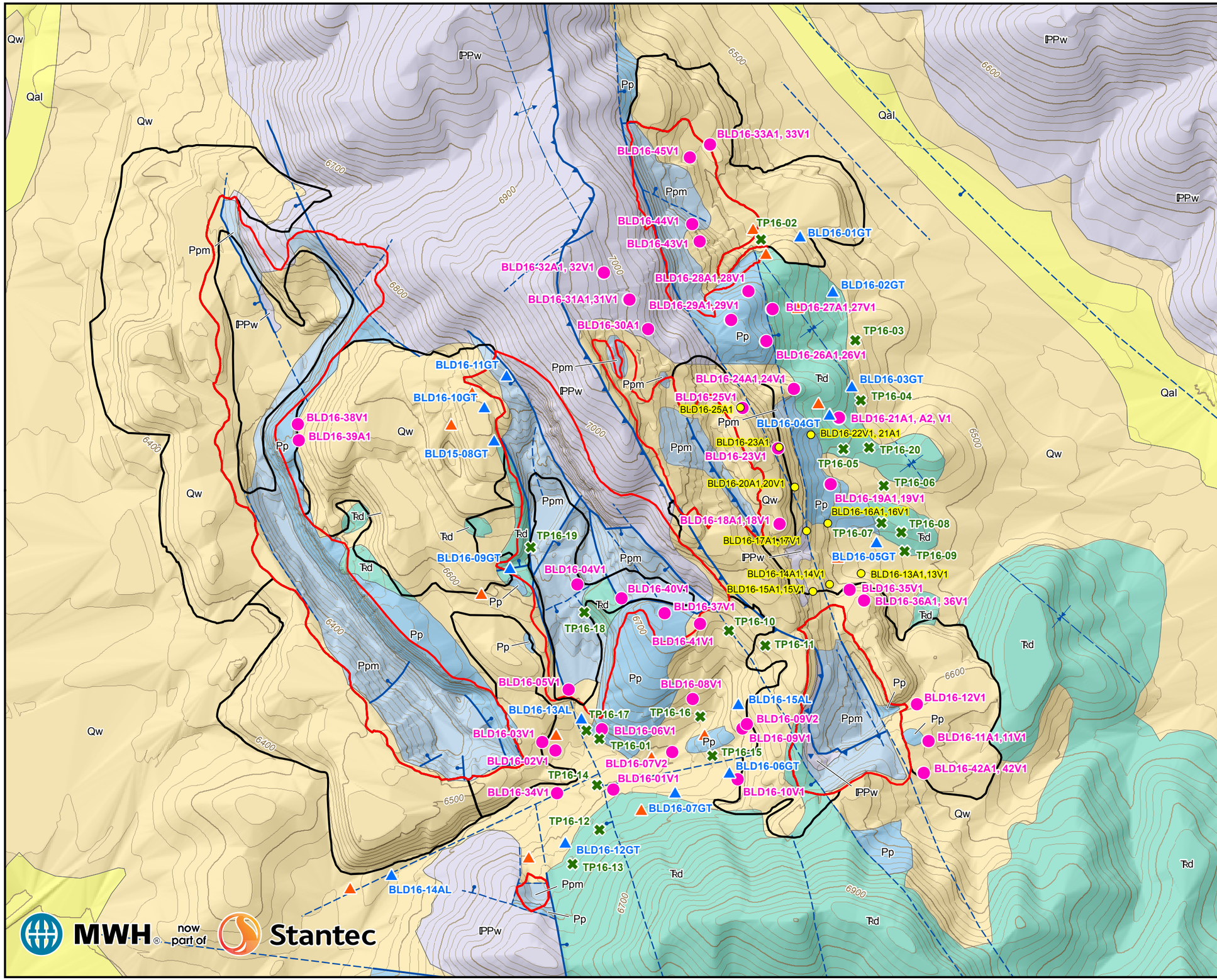

EXPLANATION

- Reverse circulation (RC) borehole
- Reverse circulation (RC) borehole (not drilled)
- ODEX borehole
- Test pit

- Qb — Basalt
- Qal — Alluvium
- Qw — Colluvium and older alluvium, may include areas covered in mine waste rock
- Trd — Dinwoody Formation - Woodside Shale
- Pp, Ppm — Phosphoria Formation: Rex Chert and Cherty Shale Members; Meade Peak Member
- PPw — Wells Formation
- Mb — Brazer Limestone

- Fault
- Approximate or inferred fault
- Normal fault (ball on downthrown block)
- Thrust fault
- Axis anticline
- Axis syncline
- Approximate mine pit location
- Approximate waste rock pile location

N W E S

0 400 800
Feet

CONTOUR INTERVAL 20 FEET

GEOLOGIC DATA SOURCES: Hovland, 1981; Mansfield, 1927

P_4 Production, LLC

BALLARD MINE DRILLING REPORT

GENERALIZED GEOLOGIC MAP SHOWING BOREHOLES AND TEST PITS

Drawing 2-1

DRAWN BY D. Severson

8 Mar 2017

C:\Data\MWH\P4 Monsanto\BALLARD MINE DRILLING REPORT\FIGURES\Dwg 2-1_Ballard_Gen Geo Map Showing Prop Expl Boreholes and Field Survey Data_withTestPits_8Mar2017.mxd

APPENDIX A

BORING AND TEST PIT LOGS

APPENDIX A-1

RC BORING LOGS

Drill Hole Log

Hole ID	BLD16-01V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	421813.95	**Depth**	201	**Log Date**	7/6/2016	**Sent to Lab**	
East	840386.48	**Hole Angle**	90	**Drill start**	6/13/2016	**Received from lab**	
Elevation	6512.722	**Hole Bearing**		**Drill End**	6/14/2016	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-01V1	3301	3305	0	27	27	Mdst	Tan	2	Din	10	
BLD16-01V1	3306	3011	27	57	30	Mdst	Gry	2.5	Din	18	Clayey
BLD16-01V1	3012	3030	57	152	95	Calc Mdst	Gry	3.5	Din	18	
BLD16-01V1			152	201	49	Calc Mdst/Sh	Gry	4.5	Din	18	No Samples Collected

Drill Hole Log

Hole ID	BLD16-02V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422140.24	**Depth**	162	**Log Date**	7/9/2016	**Sent to Lab**	7/9/16
East	839899.67	**Hole Angle**	90	**Drill start**	6/12/2016	**Received from lab**	7/18/16
Elevation	6447.921	**Hole Bearing**		**Drill End**	6/13/2016	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Descrip-tion	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-02V1	438421	438423	0	15	15	Chty Tpsoil	Tan/Gry	3.5	Alluv	10	
BLD16-02V1	438424		15	20	5	Blocky	Gry	4	CWS	40	
BLD16-02V1	438425	438450	20	74	54	Mdst/Sh	Lt Brn/Blk	3	CWS	40	H20 @ 62'
BLD16-02V1	438451	438458	74	90	16	Sltst/Mdst	Gry/Blk	2.5	CWS	40	
BLD16-02V1	438459	438462	90	98	8	Mdst/Sh	Gry/Brn	3	CWS	40	
BLD16-02V1	438463	438464	98	102	4	Mdst	Gry/Brn	2	CWS	40	
BLD16-02V1	438465		102	104	2	Sltst	Gry/Brn	3	CWS	40	
BLD16-02V1	438466		104	106	2	Sltst	Gry/Brn	3	CWS	40	
BLD16-02V1	438467		106	108	2	Sltst	Blk	3	C-Bed	240	
BLD16-02V1	438468		108	110	2	Sltst	Blk	3	FC	50	
BLD16-02V1	438469		110	112	2	Sltst	Blk	3	FC	50	
BLD16-02V1	438470		112	114	2	Sltst	Blk	3	FC	50	
BLD16-02V1	438471		114	116	2	Sltst/Mdst	Gry/Blk	3.5	FC	50	
BLD16-02V1	438472		116	118	2	Sltst/Mdst	Gry/Blk	3.5	FC	50	
BLD16-02V1	438473		118	120	2	Sltst	Blk	3	B2	250	
BLD16-02V1	438474		120	121.9	1.9	Sltst	Blk	3	B2	250	
BLD16-02V1	430000		121.9	122	0.1	Sltst	Blk	3	LW	60	
BLD16-02V1	438475		122	124	2	Sltst	Blk	3	B1	260	
BLD16-02V1	438476		124	126	2	Sltst	Blk	3	B1	260	
BLD16-02V1	438477		126	128	2	Sltst/Mdst	Brn/Gry	3	B1	260	
BLD16-02V1	438478		128	130	2	Sltst/Mdst	Brn/Gry	3	CAP	70	
BLD16-02V1	438479		130	132	2	Sltst/Mdst	Brn/Gry	2	A-Bed	280	
BLD16-02V1	438480		132	134	2	Sltst	Gry	3	A-Bed	280	
BLD16-02V1	438481		134	136	2	Sltst	Gry	3	A-Bed	280	
BLD16-02V1	438482		136	138	2	OO SS	Blk	3	A-Bed	280	
BLD16-02V1	438483		138	140	2	OO SS	Blk	3	A-Bed	280	
BLD16-02V1	438484		140	142	2	Sltst/Mdst	Brn/Gry	3	FWS	80	
BLD16-02V1	438485		142	144	2	Blocky	Gry	4	FSM	81	
BLD16-02V1	438486	438494	144	162	18	Blocky	Lt Gry	5	LMS	90	

Drill Hole Log

Hole ID	BLD16-03V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422211.37	**Depth**	202	**Log Date**	7/9/2016	**Sent to Lab**	7/18/16
East	839788.742	**Hole Angle**	90	**Drill start**	6/9/2016	**Received from lab**	7/22/16
Elevation	6477.135	**Hole Bearing**		**Drill End**	6/9/2016	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Descrip-tion	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-03V1	782301	782302	0	10	10	Chty Mdst	Tan	2	CHT	20	
BLD16-03V1	782303	782313	10	36	26	Blocky	Gry	4	CHT	20	
BLD16-03V1	782314	782316	36	42	6	Alt. CHT	Lt Gry	4	CHT	20	
BLD16-03V1	782317	782324	42	58	16	Mdst	Tan/Brn	2	UW	30	
BLD16-03V1	782325		58	60	2	Grny/Sltst	Gry/Brn	3	UW	30	
BLD16-03V1	782326		60	62	2	Grny/Sltst	Gry/Brn	3	UW	30	
BLD16-03V1	782327		62	63.9	1.9	Grny/Sltst	Gry/Brn	3	D3	130	
BLD16-03V1			63.9	64	0.1	Grny/Sltst	Gry/Brn	3	D-Mud	35	
BLD16-03V1	782328		64	66	2	Mdst	Brn	2	D2	140	
BLD16-03V1	782329		66	68	2	Mdst	Brn	2	CWS	40	
BLD16-03V1	782330		68	70	2	Mdst	Brn	2	CWS	40	
BLD16-03V1	782331		70	72	2	Grny/Mdst	Brn/Blk	3	CWS	40	
BLD16-03V1	782332	782342	72	96	24	Mdst/Sltst	Brn/Blk	2.5	CWS	40	
BLD16-03V1	782343		96	98	2	Grny/Mdst	Gry	2	CWS	40	GAMMA SPIKE
BLD16-03V1	782344	782356	98	122	24	Mdst/Sh	Brn/Blk	3	CWS	40	
BLD16-03V1	782357	782358	122	126	4	Oily Mdst	Brn/Gry	2	CWS	40	E-Bed?
BLD16-03V1	782359	782370	126	154	28	Mdst/Sh	Brn/Blk	3	CWS	40	
BLD16-03V1	782371		154	156	2	Sltst/Mdst	Blk	2	CWS	40	
BLD16-03V1	782372		156	158	2	Sltst/Mdst	Blk	2	CWS	40	
BLD16-03V1	782373		158	160	2	Sltst/Mdst	Blk	2	CWS	40	
BLD16-03V1	782374		160	162	1.9	Mdst	Blk	2	C-Bed	240	
BLD16-03V1			162	162	0.1	Mdst	Blk	2	FC	50	
BLD16-03V1	782375		162	164	2	Sltst	Blk	3	B2	250	
BLD16-03V1	782376		164	166	1.9	Sltst	Blk	3	B2	250	
BLD16-03V1			166	166	0.1	Sltst	Blk	3	LW	60	
BLD16-03V1	782377		166	168	2	Sltst	Blk	3	B1	260	
BLD16-03V1	782378		168	170	2	Sltst/Mdst	Blk	3	B1	260	
BLD16-03V1			170	170	0.1	Sltst/Mdst	Blk	3	CAP	70	
BLD16-03V1	782379		170	172	1.9	Sltst/Mdst	Blk	3	A-Bed	280	
BLD16-03V1	782380		172	174	2	Sltst	Blk	3	A-Bed	280	
BLD16-03V1	782381		174	176	2	Sltst	Blk	3	A-Bed	280	
BLD16-03V1	782382		176	178	2	Calc Mdst	Gry	4	A-Bed	280	
BLD16-03V1	782383		178	180	2	Sltst	Blk	2	FWS	80	

Drill Hole Log

Hole ID	BLD16-03V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422211.37	**Depth**	202	**Log Date**	7/9/2016	**Sent to Lab**	7/18/16
East	839788.742	**Hole Angle**	90	**Drill start**	6/9/2016	**Received from lab**	7/22/16
Elevation	6477.135	**Hole Bearing**		**Drill End**	6/9/2016	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Descrip-tion	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-03V1			180	180	0.1	Sltst	Blk	2	FWS	80	
BLD16-03V1			180	180	0.1	Sltst	Blk	2	FSM	81	
BLD16-03V1	782384	782394	180	202	22	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-04V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	423532.98	**Depth**	162	**Log Date**	7/9/16	**Sent to Lab**	7/22/16
East	840083.09	**Hole Angle**	90	**Drill start**	6/12/16	**Received from lab**	7/27/16
Elevation	6588.427	**Hole Bearing**		**Drill End**	6/12/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Descrip-tion	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-04V1	8301		0	5	5	Slty Mdst	Tan	2	Colluv	2	
BLD16-04V1	8302		5	10	5	Slty Mdst	Blk	2	Colluv	2	
BLD16-04V1	8303	8304	10	20	10	Slty Mdst	Blk	2	Colluv	2	
BLD16-04V1	8305	8307	20	36	16	Clay/Mdst	Gry/Brn	2	Colluv	2	
BLD16-04V1	8308		36	38	2	Mdst	Drk Gry	2	Colluv	2	
BLD16-04V1	8309		38	40	2	Mdst	Drk Gry	2	Colluv	2	
BLD16-04V1	8310		40	42	2	Mdst	Drk Gry	2	Colluv	2	
BLD16-04V1	8311	8319	42	60	18	Sltst/Mdst	Lt Brn/Blk	3	CWS	40	
BLD16-04V1	8320		60	62	2	Mdst	Tan/Gry	3	CWS	40	
BLD16-04V1	8321		62	64	2	Mdst	Tan/Gry	3	CWS	40	
BLD16-04V1	8322	8324	64	70	6	Mdst/Sh	Blk	2.5	CWS	40	
BLD16-04V1	8325		70	72	2	Mdst	Blk	2	CWS	40	Ore or E-Bed?
BLD16-04V1	8326		72	74	2	Mdst	Blk	2	CWS	40	OILLY
BLD16-04V1	8327	8331	74	84	10	Mdst	Blk	3	CWS	40	
BLD16-04V1	8332	8339	84	100	16	Mdst/Sh	Brn/Gry	3	CWS	40	
BLD16-04V1	8340		100	101	1	Mdst	Tan/Gry	2.5	CWS	40	
BLD16-04V1			101	101.1	0.1	Mdst	Tan/Gry	2.5	C-Bed	240	? Low Gamma; Sample Per DLC
BLD16-04V1			101	102	0.9	Mdst	Tan/Gry	2.5	FC	50	
BLD16-04V1	8341		102	104	2	Mdst	Tan/Gry	2.5	FC	50	
BLD16-04V1	8342		104	106	2	Mdst	Drk Brn/Blk	2	FC	50	
BLD16-04V1	8343		106	107	1	Mdst	Drk Brn/Blk	2	B2	250	
BLD16-04V1			107	108	1	Mdst	Drk Brn/Blk	2	LW	60	
BLD16-04V1	8344		108	110	2	Mdst/Sltst	Blk	2.5	B1	260	
BLD16-04V1	8345		110	112	2	Mdst/Sltst	Blk	2.5	B1	260	
BLD16-04V1	8346		112	114	2	Mdst/Sltst	Blk	2.5	CAP	70	
BLD16-04V1	8347		114	116	2	Mdst/Sh	Drk Gry	2.5	CAP	70	
BLD16-04V1	8348		116	118	2	Mdst/Sltst	Drk Gry	3	CAP	70	
BLD16-04V1	8349		118	119.8	1.8	Sltst	Drk Gry	3	A-Bed	280	
BLD16-04V1			120	119.9	0.1	Sltst	Drk Gry	3	FWS	80	
BLD16-04V1			120	120	0.1	Sltst	Drk Gry	3	FSM	81	
BLD16-04V1	8350	8352	120	126	6	Blocky	Lt Gry	4	LMS	90	
BLD16-04V1	8353	8370	126	162	36	Calc SS	YEL/GRY	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-05V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422651.02	**Depth**	292	**Log Date**	7/12/16	**Sent to Lab**	7/18/16
East	840010.42	**Hole Angle**	90	**Drill start**	6/10/16	**Received from lab**	7/27/16
Elevation	6502.6	**Hole Bearing**		**Drill End**	6/11/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Descrip-tion	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-05V1	782101	782128	0	66	66	Blocky	Gry/Brn	2.5-3	Colluv	2	
BLD16-05V1	782129	782130	66	70	4	Blocky	Drk Gry	5	CHT	20	
BLD16-05V1	782131	782143	70	96	26	Mdst	Drk Gry	3	CHT	20	
BLD16-05V1	782144	782170	96	150	54	Blocky	Drk Gry	5	CHT	20	
BLD16-05V1	782171		150	152	2	Mdst	Gry/Brn	3	Fault	99	
BLD16-05V1	782172		152	154	2	Sltst	Blk/Brn	3	CWS	40	
BLD16-05V1	782173		154	156	2	Mdst	Blk/Brn	2	CWS	40	
BLD16-05V1	782174		156	158	2	Mdst/Sltst	Blk/Brn	2.5	CWS	40	
BLD16-05V1	782175		158	160	2	Mdst/Sltst	Blk/Brn	2.5	CWS	40	
BLD16-05V1	782176	782179	160	168	8	Mdst	Drk Gry	3	CWS	40	
BLD16-05V1	782180	782182	168	174	6	Mdst	Lt Brn	2	CWS	40	
BLD16-05V1	782183	782206	174	222	48	Mdst/Sltst	Blk/Brn	2.5	CWS	40	
BLD16-05V1	782207	782208	222	226	4				Void	95	No Sample
BLD16-05V1	782209	782210	226	230	4	Mdst	Brn	2	CWS	40	
BLD16-05V1	782211	782213	230	236	6	Sltst/Mdst	Blk/Brn	2.5	CWS	40	
BLD16-05V1	782214		236	238	2	Sltst	Drk Gry	3	CWS	40	
BLD16-05V1	782215		238	240	2	Sltst/Mdst	Drk Gry	2	C-Bed	240	
BLD16-05V1	782216		240	242	2	Sltst/Mdst	Drk Gry	3	FC	50	
BLD16-05V1	782217		242	244	2	Calc Mdst	Drk Gry	3	FC	50	
BLD16-05V1	782218		244	245.9	1.9	Sltst	Drk Gry	3	B2	250	
BLD16-05V1			245.9	246	0.1	Sltst	Drk Gry	3	LW	60	
BLD16-05V1	782219		246	248	2	Sltst	Drk Gry	3	B1	260	
BLD16-05V1	782220		248	249.9	1.9	Sltst	Drk Gry	3	B1	260	
BLD16-05V1			249.9	250	0.1	Sltst	Drk Gry	3	CAP	70	
BLD16-05V1	782221		250	252	2	Mdst	Drk Gry	3	A-Bed	280	
BLD16-05V1	782222		252	254	2	OO SS	Gry	3	A-Bed	280	
BLD16-05V1	782223		254	256	2	OO SS	Gry	3	A-Bed	280	
BLD16-05V1	782224		256	258	2	OO SS	Gry	3	FWS	80	
BLD16-05V1	782225		258	260	2	Mdst/Sltst	Gry	2	FWS	80	
BLD16-05V1	782226		260	262	2	Mdst/Sltst	Gry	3	FSM	81	
BLD16-05V1	782227	782241	262	292	30	LMS	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-06V1	Logged By:	SDK	Dates:		Type	RC
North	422319.16	Depth	182	Log Date	7/13/16	Sent to Lab	7/22/16
East	840289.87	Hole Angle	90	Drill start	6/14/16	Received from lab	7/27/16
Elevation	6453.605	Hole Bearing		Drill End	6/14/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-06V1	3201	3202	0	10	10	Chty Tpsoil	Lt Brn/Gry	3.5	Colluv	2	
BLD16-06V1	3203	3219	10	62	52	CHT	Blk/Gry	4	Colluv	2	
BLD16-06V1	3220	3221	62	66	4	Dolo	Lt Blue	4	Colluv	2	
BLD16-06V1	3222	3226	66	76	10	Mdst	Brn	2	Colluv	2	
BLD16-06V1	3227		76	78	2	Sltst	Gry	3	CWS	40	
BLD16-06V1	3228	3229	78	82	4	Mdst/Sltst	Drk Brn	2.5	CWS	40	I really feel like there is a fault between 78-86' (Just a hunch)
BLD16-06V1	3230		82	84	2	Mdst/CHT	Brn/Gry	3	CWS	40	Cht
BLD16-06V1	3231		84	86	2	Mdst	Brn	2	CWS	40	
BLD16-06V1	3232		86	88	2	Mdst	Brn	2	C-Bed	240	
BLD16-06V1	3233		88	90	2	Mdst	Brn	2	C-Bed	240	
BLD16-06V1	3234		90	92	2	Mdst	Drk Brn	2	FC	50	
BLD16-06V1	3235		92	94	2	Mdst	Drk Brn	1	FC	50	
BLD16-06V1	3236		94	95.9	1.9	Sltst/Mdst	Bry/Gry	2.5	B2	250	
BLD16-06V1			95.9	96	0.1	Sltst/Mdst	Bry/Gry	2.5	LW	60	
BLD16-06V1	3237		96	98	2	Calc Sltst	Blk/Gry	3	B1	260	
BLD16-06V1	3238		98	100	2	Sltst	Blk/Gry	3	B1	260	
BLD16-06V1	3239		100	102	2	Sltst	Blk/Gry	3	B1	260	
BLD16-06V1	3240		102	104	2	Calc Mdst	Brn/Gry	2.5	CAP	70	
BLD16-06V1	3241		104	106	2	Calc Mdst	Brn/Gry	2.5	CAP	70	
BLD16-06V1	3242		106	108	2	Sltst	Gry	3	A-Bed	280	
BLD16-06V1	3243		108	110	2	Sltst	Gry	3	A-Bed	280	
BLD16-06V1	3244		110	112	2	Sltst/Mdst	Brn/Gry	3	A-Bed	280	
BLD16-06V1	3245		112	114	2	Mdst	Brn	2	A-Bed	280	
BLD16-06V1	3246		114	116	2	Mdst	Brn	2	FWS	80	
BLD16-06V1	3247		116	118	2	Mdst	Brn	2	FWS	80	
BLD16-06V1	3248		118	120	2	Mdst	Lt Brn	1	FSM	81	
BLD16-06V1	3249		120	122	2	CHT	Blk	4	LMS	90	
BLD16-06V1	3250	3251	122	126	4	CHT/LMS	Blk/Gry	4	LMS	90	
BLD16-06V1	3252	3260	126	146	20	Blocky	Lt Gry	4	LMS	90	
BLD16-06V1	3261	3278	146	182	36	Calc SS	Yel/Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-07V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422127.52	**Depth**	155	**Log Date**	6/11/2016	**Sent to Lab**	
East	840880.38	**Hole Angle**	90	**Drill start**	6/11/2016	**Received from lab**	
Elevation	6502.26	**Hole Bearing**		**Drill End**	6/11/2016	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-07V1	457969	457971	0	15	15	Mdst/CHT	Lt Brn	3	Alluv	10	
BLD16-07V1	457972	457990	15	112	97	Blocky	Blk/Gry	4	CHT	20	
BLD16-07V1	457999	458000	112	122	10	Blocky	Blk/Gry	4	CHT	20	
BLD16-07V1	457991	457992	122	127	5	Dolo	Lt Blue	4	UW	30	
BLD16-07V1	457993	457998	127	139	12	Calc Mdst	Blk	3	UW	30	

*Abandon hole due to conditions Making H20 @ 19 Gal/Min @_____'

* Offset coor. By 17' to the west

Drill Hole Log

Hole ID	BLD16-07V2	Logged By:	SDK	Dates:		Type	RC
North	422127.52	Depth	309	Log Date	7/13/16	Sent to Lab	7/22/16
East	840880.38	Hole Angle	90	Drill start	6/12/16	Received from lab	7/27/16
Elevation	6502.26	Hole Bearing		Drill End	6/13/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-07V2	457501	457502	0	10	10	Mdst/CHT	Lt Brn	3	Alluv	10	H20 @ 35-40'
BLD16-07V2	457503	457509	10	45	35	Blocky	Blk/Gry	4	Alluv	10	Drilled dry
BLD16-07V2	457510	457525	45	122	77	Blocky	Blk/Gry	4	Alluv	10	@ 7 Gal/Min
BLD16-07V2	457526		122	127	5	Dolo	Lt Blue	4	Alluv	10	Some Alt. CHT
BLD16-07V2	457527	457534	127	143	16	Calc Mdst	Blk	3	CWS	40	
BLD16-07V2	457535		143	145	2	OO SS	Blk	2.5	CWS	40	
BLD16-07V2	457536		145	147	2	Sltst/Mdst	Blk	2.5	CWS	40	
BLD16-07V2	457537		147	149	2	Sltst/Mdst	Blk	3	CWS	40	
BLD16-07V2	457538		149	151	2	Sltst/Mdst	Blk	3	CWS	40	
BLD16-07V2	457539		151	153	2	Mdst	Gry/Blk	2.5	CWS	40	E-Bed?
BLD16-07V2	457540		153	155	2	Mdst	Gry/Blk	2.5	CWS	40	
BLD16-07V2	457541		155	157	2	Mdst	Gry/Blk	3	CWS	40	Some CHT;
BLD16-07V2	457542		157	159	2	Sltst/Mdst	Blk	3	CWS	40	H20 @19Gal/Min
BLD16-07V2	457543		159	161	2	Sltst/Mdst	Blk	3	CWS	40	Pyrite&Calc Veins
BLD16-07V2	457544	457551	161	177	16	Sltst/Mdst	Blk	3	CWS	40	Calc Veins
BLD16-07V2	457552		177	179	2	Bxa	Mixed	4	Fault	99	
BLD16-07V2	457553	457556	179	187	8	Sltst	Blk	3	CWS	40	
BLD16-07V2	457557		187	189	2	Sltst	Blk	3	CWS	40	
BLD16-07V2	457558		189	190.9	1.9	Sltst	Blk	3	C-Bed	240	
BLD16-07V2			190.9	191	0.1	Sltst	Blk	3	FC	50	
BLD16-07V2	457559		191	193	2	Sltst	Blk	3	B2	260	
BLD16-07V2	457560		193	195	2	Calc Sltst	Gry	2.5	B2	260	
BLD16-07V2			195	196.8	1.8	Calc Sltst	Gry/Brn	2.5	LW	60	
BLD16-07V2			196.8	196.9	0.1	Calc Sltst	Gry/Brn	2.5	B1	270	
BLD16-07V2	457561		196.9	197	0.1	Calc Sltst	Gry/Brn	2.5	CAP	70	
BLD16-07V2	457562		197	199	2	Calc Sltst	Gry/Brn	2.5	CAP	70	
BLD16-07V2	457563		199	201	2	Sltst/Mdst	Gry/Brn	3	CAP	70	Calc
BLD16-07V2	457564		201	203	2	Sltst/Mdst	Gry/Brn	3	CAP	70	Calc
BLD16-07V2	457565		203	205	2	Sltst	Blk	3	A-Bed	280	
BLD16-07V2	457566		205	207	2	Sltst	Blk	3	A-Bed	280	

Drill Hole Log

Hole ID	BLD16-07V2	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422127.52	**Depth**	309	**Log Date**	7/13/16	**Sent to Lab**	7/22/16
East	840880.38	**Hole Angle**	90	**Drill start**	6/12/16	**Received from lab**	7/27/16
Elevation	6502.26	**Hole Bearing**		**Drill End**	6/13/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-07V2	457567		207	209	2	Mdst/Sltst	Blk/Brn	2	FWS	80	
BLD16-07V2	457568		209	211	2	Blocky	Gry/Blk	4	FSM	81	
BLD16-07V2	457569	457599	211	309	98	Blocky	Gry/Blk	4	LMS	90	H20 @ 245-247' @ 38 Gal/Min

Drill Hole Log

Hole ID	BLD16-08V1	Logged By:	SDK	Dates:		Type	RC
North	422572.98	Depth	242	Log Date	7/14/16	Sent to Lab	8/15/16
East	841052.99	Hole Angle	90	Drill start	6/14/16	Received from lab	8/18/16
Elevation	6548.138	Hole Bearing		Drill End	6/15/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-08V1	433301	433320	0	50	50	CHT	Blk	5	CHT	20	
BLD16-08V1	433321	433332	50	74	24	CHT/Mdst	Gry/Brn	4	UW	30	
BLD16-08V1	433333		74	76	2	Alt. CHT	Gry/Brn	4	UW	30	
BLD16-08V1	433334		76	78	2	Dolo	Lt Blue	4.5	UW	30	Sample/DLC
BLD16-08V1	433335		78	80	2	Sltst/SS	Blk	3	D3	130	
BLD16-08V1	433336		80	82	2	Sltst/SS	Blk	3	D3	130	
BLD16-08V1	433337		82	84	2	Sltst	Blk	3	D3	130	
BLD16-08V1	433338		84	85.9	1.9	Sltst	Blk	3	D3	130	
BLD16-08V1			85.9	86	0.1	Sltst	Blk	3	D-Mud	35	
BLD16-08V1	433339		86	88	2	Sltst	Blk	3	D2	140	
BLD16-08V1	433340		88	90	2	Sltst/Mdst	Drk Gry	2.5	D2	140	
BLD16-08V1	433341		90	92	2	Sltst/Mdst	Drk Gry	2.5	D2	140	
BLD16-08V1	433342		92	94	2	Sltst/Mdst	Drk Gry	2.5	D2	140	
BLD16-08V1	433343		94	96	2	Sltst	Blk	3	D2	140	
BLD16-08V1	433344		96	98	2	Sltst	Blk	3	D2	140	
BLD16-08V1	433345	433363	98	136	38	Sltst	Blk	3	CWS	40	
BLD16-08V1	433364	433380	136	170	34	Mdst/Sh	Brn/Blk	2.5	CWS	40	
BLD16-08V1	433381	433384	170	178	8	Mdst	Blk	2	CWS	40	
BLD16-08V1	433385	433389	178	188	10	Sltst/Mdst	Blk	3	CWS	40	2' Void@178'
BLD16-08V1	433390		188	190	2	Sltst	Blk	3	C-Bed	240	
BLD16-08V1	433391		190	192	2	Sltst	Blk	3	C-Bed	240	
BLD16-08V1	433392		192	194	2	Sltst	Blk	3	FC	50	
BLD16-08V1	433393		194	196	2	Sltst/Mdst	Brn/Blk	2.5	FC	50	
BLD16-08V1	433394		196	198	2	Sltst/Mdst	Brn/Blk	3	FC	50	
BLD16-08V1	433395		198	200	2	Sltst/Mdst	Brn/Blk	3	FC	50	
BLD16-08V1	433396		200	202	2	Sltst	Blk	3	B2	250	
BLD16-08V1	433397		202	204	2	Sltst	Blk	3	LW	60	
BLD16-08V1	433398		204	206	2	Sltst	Blk	2.5	B1	260	
BLD16-08V1	433399		206	208	2	Sltst	Blk	3	B1	260	
BLD16-08V1	433400		208	210	2	Mdst	Brn/Blk	2.5	B1	260	
BLD16-08V1	433101		210	212	2	Mdst	Brn/Blk	2.5	CAP	70	

Drill Hole Log

Hole ID	BLD16-08V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422572.98	**Depth**	242	**Log Date**	7/14/16	**Sent to Lab**	8/15/16
East	841052.99	**Hole Angle**	90	**Drill start**	6/14/16	**Received from lab**	8/18/16
Elevation	6548.138	**Hole Bearing**		**Drill End**	6/15/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-08V1	433102		212	214	2	Calc Mdst	Brn/Blk	3	A-Bed	280	
BLD16-08V1	433103		214	216	2	Sltst	Blk	3	A-Bed	280	
BLD16-08V1	433104		216	218	2	Sltst	Blk	3	A-Bed	280	
BLD16-08V1	433105		218	220	2	Sltst	Blk	3	A-Bed	280	
BLD16-08V1	433106		220	222	2	Sltst/Mdst	Brn/Blk	2	A-Bed	280	
BLD16-08V1	433107		222	223.9	1.9	Mdst	Brn	2	FWS	80	
BLD16-08V1			223.9	224	0.1	Mdst	Brn	2	FSM	81	
BLD16-08V1	433108	433116	224	242	18	Blocky	Lt Blue	Gry	LMS	90	

Drill Hole Log

Hole ID	BLD16-09V2	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422361.45	**Depth**	322	**Log Date**	8/8/16	**Sent to Lab**	8/8/16
East	841506.67	**Hole Angle**	90	**Drill start**	7/22/16	**Received from lab**	8/15/16
Elevation	6595.608	**Hole Bearing**		**Drill End**	7/23/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-09V2	438257	438259	0	15	15	Mdst	Tan	2	Alluv	10	
BLD16-09V2	438260	438277	15	107	92	Blocky	Gry/Blk	4	CHT	20	
BLD16-09V2	438278		107	112	5	Crystn	Blk/Brn	4	CHT	20	Some Qtz
BLD16-09V2	438279	438284	112	142	30	Blocky	Blk/Gry	4	CHT	20	
BLD16-09V2	438285		142	147	5	Dolo	Blue/Gry	4	CHT	20	
BLD16-09V2	438286		147	152	5	Mdst	Blk	2	CWS	40	
BLD16-09V2	438287		152	157	5	Mdst	Gry	3	CWS	40	
BLD16-09V2	438288		157	162	5	Sltst	Blk	3	CWS	40	
BLD16-09V2	438289		162	164	2	Mdst/Sltst	Blk	2.5	CWS	40	
BLD16-09V2	438290		164	166	2	Mdst/Sltst	Blk	2.5	CWS	40	
BLD16-09V2	438291	438295	166	176	10	Sltst	Blk	3	CWS	40	
BLD16-09V2	438296	438300	176	186	10	Calc Mdst	Gry	3	CWS	40	
BLD16-09V2	714101	714113	186	212	26	Sltst/Sh	Blk	2.5	CWS	40	
BLD16-09V2	714114	714120	212	226	14	Calc Mdst	Gry	3	CWS	40	
BLD16-09V2	714121	714134	226	252	26	Sltst/Mdst	Blk	2.5	CWS	40	E-Bed @ 229' H2O @248'
BLD16-09V2	714135	714138	252	262	10	Calc Mdst	Gry	3	CWS	40	
BLD16-09V2	714139		262	264	2	Sltst/Mdst	Brn/Blk	2.5	C-Bed	240	
BLD16-09V2	714140		264	266	2	Sltst	Blk	3	C-Bed	240	
BLD16-09V2	714141		266	268	2	Sltst/Mdst	Blk	3	FC	50	
BLD16-09V2	714142		268	270	2	Sltst/Mdst	Blk	3	FC	50	
BLD16-09V2	714143		270	272	2	Calc Mdst		4	FC	50	
BLD16-09V2	714144		272	274	2	Calc Mdst		4	FC	50	
BLD16-09V2	714145		274	276	2	Mdst/Sltst	Brn/Blk	3	B2	250	Calc
BLD16-09V2	714146		276	278	2	Sltst/SS	Blk	3	B2	250	
BLD16-09V2	714147		278	280	1.9	Sltst	Blk	3	B2	250	
BLD16-09V2			280	280	0.1	Sltst	Blk	3	LW	60	
BLD16-09V2	714148		280	282	2	Sltst/SS	Brn/Blk	3	B1	260	
BLD16-09V2	714149		282	284	2	Sltst/SS	Brn/Blk	3	B1	260	
BLD16-09V2	714150		284	286	2	Sltst/Mdst	Blk/Gry	3	B1	260	
BLD16-09V2	714151		286	288	2	Sltst/Mdst	Blk/Gry	3	CAP	70	
BLD16-09V2	714152		288	290	2	Sltst/Sh	Blk/Gry	3	CAP	70	

Drill Hole Log

Hole ID	BLD16-09V2	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422361.45	**Depth**	322	**Log Date**	8/8/16	**Sent to Lab**	8/8/16
East	841506.67	**Hole Angle**	90	**Drill start**	7/22/16	**Received from lab**	8/15/16
Elevation	6595.608	**Hole Bearing**		**Drill End**	7/23/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-09V2	714153		290	292	2	Sh/Sltst	Blk	2.5	CAP	70	
BLD16-09V2	714154		292	294	2	Sltst	Blk	3	A-Bed	280	
BLD16-09V2	714155		294	296	2	Sltst	Blk	3	A-Bed	280	
BLD16-09V2	714156		296	298	2	Sltst	Drk Gry	3	A-Bed	280	
BLD16-09V2	714157		298	300	2	Sltst/Mdst	Drk Gry	3	FWS	80	
BLD16-09V2	714158		300	302	2	Calc Mdst	Drk Gry	3	FWS	80	
BLD16-09V2	714159		302	304	2	Sltst	Blk	3	FSM	81	
BLD16-09V2	714160	714165	304	322	18	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-10V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	421898.616	**Depth**	218	**Log Date**	8/31/16	**Sent to Lab**	
East	841429.662	**Hole Angle**	90	**Drill start**	6/10/16	**Received from lab**	
Elevation	6584.395	**Hole Bearing**		**Drill End**	6/10/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-10V1	457801		0	5	5	Topsoil	Brn	2	Alluv	5	
BLD16-10V1	457802	457816	5	82	77	Clayly Mdst	Yel/Gry	2.5	Din	18	
BLD16-10V1	457817	457827	82	137	55	Clayly Mdst	Gry	2.5	Din	18	
BLD16-10V1	457828	457860	137	218	81	Mdst	Drk Gry	3	Din	18	

*Abandon hole due to caving conditions and making H2O

Drill Hole Log

Hole ID	BLD16-11A1	**Logged By:**	NK	**Dates:**		**Type**	RC
North	843029.83	**Depth**	232	**Log Date**	7/18/16	**Sent to Lab**	7/22/16
East	422219.62	**Hole Angle**	60	**Drill start**	6/20/16	**Received from lab**	7/27/16
Elevation	6628.521	**Hole Bearing**	255	**Drill End**	6/20/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-11A1	433172	433174	0	15	15	Chty Tpsoil	Lt Brn	4	Alluv	10	
BLD16-11A1	433175	433196	15	127	112	CHT	Gry/Blk	4	CHT	20	Roots @22' Pyrite @ 77' &107'
BLD16-11A1	433197	433198	127	137	10	Dolo	LT BLUE	4	CHT	20	
BLD16-11A1	433199	5000	137	147	10	Calc Mdst	Gry/Blk	4	UW	30	
BLD16-11A1	5001		147	152	5	Sltst	Blk	3.5	D3	130	
BLD16-11A1	5002		152	157	5	Mdst	Gry	3.5	D3	130	
BLD16-11A1	5003		157	160	3	Sltst	Blk	3.5	D3	130	
BLD16-11A1	5003		160	161	1	Sltst	Blk	3.5	D-Mud	35	
BLD16-11A1	5003		161	162	1	Sltst	Blk	3.5	D2	140	
BLD16-11A1	5004		162	167	5	Sltst	Blk	3.5	CWS	40	
BLD16-11A1	5005		167	172	5	Sltst	Blk	2.5	CWS	40	
BLD16-11A1	5006	5007	172	182	10	Mdst	Blk/Brn	3	CWS	40	
BLD16-11A1	5008	5021	182	209.9	27.9	Mdst/Sh	Brn/Blk	2.5	CWS	40	
BLD16-11A1			209.9	210	0.1	Mdst/Sh	Brn/Blk	2.5	Fault	99	
BLD16-11A1	5022	5029	210	232	22	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-11V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	422219.79	**Depth**	152	**Log Date**	7/18/16	**Sent to Lab**	
East	843034.09	**Hole Angle**	90	**Drill start**	6/15/16	**Received from lab**	
Elevation	6628.326	**Hole Bearing**		**Drill End**	6/20/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-11V1	433117	433122	0	32	32	Chty Mdst	Lt Brn	4	Alluv	10	
BLD16-11V1	433123	433139	32	117	85	CHT	Gry	4	CHT	20	Pyrite 87'-117'
BLD16-11V1	433140	433142	117	132	15	Dolo	Lt Blue	4	UW	30	
BLD16-11V1	433143	433146	132	152	20	Calc Mdst	Gry/Blk	4	UW	30	

Drill Hole Log

Hole ID	BLD16-12V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	842935.17	**Depth**	312	**Log Date**	8/8/16	**Sent to Lab**	8/8/16
East	422529.18	**Hole Angle**	90	**Drill start**	7/21/16	**Received from lab**	8/15/16
Elevation	6650.459	**Hole Bearing**		**Drill End**	7/21/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Descriptior	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-12V1	713614	713624	0	44	44	Mdst	Brn/Gry	2	Colluv	2	
BLD16-12V1	713625	713670	44	134	90	Blocky	Blk/Gry	4	CHT	20	Pyrite @86-96', 120-128'
BLD16-12V1	713671	713676	134	146	12	Calc Mdst	Gry	4	CHT	20	
BLD16-12V1	713677		146	148	2	Dolo	Blue/Gry	4	CHT	20	
BLD16-12V1	713678		148	150	2	Crystn	Blue/Gry	4	CHT	20	
BLD16-12V1	713679		150	152	2	Crystn	Blue/Gry	4	CHT	20	
BLD16-12V1	713680		152	154	2	Crystn	Blue/Gry	4	CHT	20	
BLD16-12V1	713681		154	156	2	Mdst	Gry	3	UW	30	
BLD16-12V1	713682		156	158	2	Mdst	Gry	3	UW	30	
BLD16-12V1	713683		158	160	2	Sltst/Mdst	Drk Gry	2.5	UW	30	
BLD16-12V1	713684		160	162	2	Sltst/Mdst	Drk Gry	2.5	UW	30	
BLD16-12V1	713685		162	164	2	Sltst/Mdst	Drk Gry	2.5	UW	30	
BLD16-12V1	713686		164	166	2	Sltst/Mdst	Drk Gry	2.5	UW	30	
BLD16-12V1	713687		166	168	2	Sltst	Drk Gry	3	D3	130	
BLD16-12V1	713688		168	170	2	Sltst	Drk Gry	3	D3	130	
BLD16-12V1	713689		170	172	2	Sltst	Drk Gry	3	D3	130	
BLD16-12V1	713690		172	174	2	Sltst/Mdst	Gry	3	D3	130	
BLD16-12V1	713691		174	176	2	Sltst	Drk Gry	3	D-Mud	35	
BLD16-12V1	713692		176	178	2	Calc Mdst	Gry	3	D2	140	
BLD16-12V1	713693		178	180	2	Calc Mdst	Gry	3	D2	140	
BLD16-12V1	713694		180	182	2	Calc Mdst	Gry	3	D2	140	
BLD16-12V1	713695		182	184	2	Sltst	Drk Gry	3	D2	140	
BLD16-12V1	713696		184	186	2	Calc Sltst	Drk Gry	3	CWS	40	
BLD16-12V1	713697	713700	186	194	8	Sltst/Mdst	Drk Gry	3	CWS	40	
BLD16-12V1	438201	438209	194	212	18	Sltst/Mdst	Drk Gry	3	CWS	40	
BLD16-12V1	438210	438220	212	234	22	Calc Mdst	Gry	3	CWS	40	Red/Orange Oxidation
BLD16-12V1	438221	438232	234	258	24	Calc Sltst	Drk Gry	3	CWS	40	
BLD16-12V1	438233		258	259	1	Sltst/Mdst	Gry	2.5	CWS	40	
BLD16-12V1			259	260	1	Sltst/Mdst	Gry	2.5	C-Bed	240	
BLD16-12V1	438234		260	262	2	Sltst/Mdst	Gry	2.5	C-Bed	240	
BLD16-12V1	438235		262	264	2	Mdst	Gry	2.5	FC	50	

Drill Hole Log

Hole ID	BLD16-12V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	842935.17	**Depth**	312	**Log Date**	8/8/16	**Sent to Lab**	8/8/16
East	422529.18	**Hole Angle**	90	**Drill start**	7/21/16	**Received from lab**	8/15/16
Elevation	6650.459	**Hole Bearing**		**Drill End**	7/21/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Descriptior	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-12V1	438236		264	266	2	Calc Mdst	Brn/Blk	3	FC	50	
BLD16-12V1	438237		266	268	2	Calc Mdst	Brn/Blk	2.5	FC	50	
BLD16-12V1	438238		268	270	2	Sltst/SS	Blk	3	B2	250	
BLD16-12V1	438239		270	272	2	Sltst	Blk	3	B2	250	
BLD16-12V1	438240		272	274	1.9	Sltst/Mdst	Blk	3	B2	250	
BLD16-12V1			274	274	0.1	Sltst/Mdst	Blk	3	LW	60	
BLD16-12V1	438241		274	276	2	Calc Mdst	Gry	2.5	B1	260	
BLD16-12V1	438242		276	278	2	Calc Mdst	Gry	2.5	CAP	70	
BLD16-12V1	438243		278	280	2	Sltst/SS	Blk	3	A-Bed	280	
BLD16-12V1	438244		280	282	2	Sltst	Blk	3	A-Bed	280	
BLD16-12V1	438245		282	284	2	Calc Mdst	Gry	3	FWS	80	
BLD16-12V1	438246		284	286	2	Calc Sltst	Blk	3	FSM	81	
BLD16-12V1	438247	438256	286	312	26	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-18A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	424038.41	**Depth**	102	**Log Date**	6/24/16	**Sent to Lab**	
East	841778.88	**Hole Angle**	50	**Drill start**	6/14/16	**Received from lab**	
Elevation	6757.699	**Hole Bearing**	255	**Drill End**	6/14/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-18A1	782250	782252	0	10	10	Mdst	LT BRN	3	Colluv	2	
BLD16-18A1	782253	782260	10	57	47	Blky	LT GRY	5	LMS	90	
BLD16-18A1	782261	782269	57	102	45	Blky	GRY	5	LMS	90	

Drill Hole Log

Hole ID	BLD16-18V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	424039.04	**Depth**	42	**Log Date**	7/14/16	**Sent to Lab**	
East	841781.89	**Hole Angle**	90	**Drill start**	6/14/16	**Received from lab**	
Elevation	6757.321	**Hole Bearing**		**Drill End**	6/14/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-18V1	752242		0	5	5	Mdst	Lt Brn	2	Colluv	2	
BLD16-18V1	752243		5	10	5	Mdst	Drk Brn	2	Colluv	2	
BLD16-18V1	752244		10	15	5	Mdst	Drk Brn	2	Colluv	2	
BLD16-18V1	752245	752246	15	25	10	LMS	Drk Brn	3	LMS	90	
BLD16-18V1	752247		25	32	7	Mdst	Tan	2	LMS	90	
BLD16-18V1	752248	752249	32	42	10	LMS	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-19A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	424371.36	**Depth**	122	**Log Date**	6/24/16	**Sent to Lab**	
East	842207.13	**Hole Angle**	50	**Drill start**	6/23/16	**Received from lab**	
Elevation	6623.707	**Hole Bearing**	255	**Drill End**	6/24/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-19A1	433431	433432	0	15	15	Chty Tpsoil	Lt Brn/Gry	4	CHT	20	
BLD16-19A1	433433	433444	15	72	57	Blky	Drk Gry	4.5	CHT	20	
BLD16-19A1	433445	433447	72	87	15	Breccia	Yel/Gry	4.5	Fault	99	
BLD16-19A1	433448		87	92	5	Blocky	Yel/Gry	4.5	LMS	90	
BLD16-19A1	433449	433454	92	122	30	Calc SS	Yel	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-19V1	Logged By:	SDK	Dates:		Type	RC
North	424372.8	Depth	312	Log Date	6/23/16	Sent to Lab	7/29/16
East	842211.1	Hole Angle	90	Drill start	6/23/16	Received from lab	8/1/16
Elevation	6623.608	Hole Bearing		Drill End	6/23/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-19V1	438178	438180	0	15	15	Tpsoil/CHT	Lt Brn/Gry	4	CHT	20	
BLD16-19V1	438181	438378	15	152	137	Blky	Gry	4	CHT	20	Pyrite 92'-147' & Alt. CHT 142-152 & H2O
BLD16-19V1	438379		152	157	5	CHT	Drk Gry	3.5	CHT	20	Muddy
BLD16-19V1	438380		157	162	5	Mdst	Drk Gry	2.5	UW	30	
BLD16-19V1	438381		162	164	2	Mdst	Drk Gry	2	UW	30	
BLD16-19V1	438382		164	166	2	Mdst/Sltst	Drk Gry	2.5	UW	30	
BLD16-19V1	438383		166	168	2	Mdst	Drk Gry	2	UW	30	
BLD16-19V1	438384		168	170	2	Mdst/Sltst	Drk Gry	2.5	UW	30	
BLD16-19V1	438385		170	172	2	Mdst/Sltst	Drk Gry	2.5	UW	30	
BLD16-19V1	438386		172	174	2	Mdst/Sltst	Drk Gry	2.5	UW	30	
BLD16-19V1	438387		174	176	2	Mdst/Sltst	Drk Gry	2.5	UW	30	
BLD16-19V1	438388		176	178	2	Mdst/Sltst	Drk Gry	2.5	UW	30	
BLD16-19V1	438389		178	180	2	Mdst/Sltst	Drk Gry	2.5	UW	30	
BLD16-19V1	438390		180	182	2	Mdst/Sltst	Drk Gry	2.5	UW	30	
BLD16-19V1	438391		182	184	2	Mdst	Drk Gry	2	D3	130	
BLD16-19V1	438392		184	186	2	Mdst	Drk Gry	2	D3	130	
BLD16-19V1	438393		186	188	2	Mdst	Drk Gry	2	D3	130	
BLD16-19V1	438394		188	190	2	Mdst	Drk Gry	2	D3	130	
BLD16-19V1	438395		190	192	2	Mdst/Sltst	Drk Gry	3	D3	130	
BLD16-19V1	438396		192	194	2	Mdst/Sltst	Drk Gry	3	D3	130	
BLD16-19V1	438397		194	196	2	Mdst/Sltst	Drk Gry	2.5	D3	130	
BLD16-19V1	438398		196	198	2	Mdst/Sltst	Drk Gry	2.5	D3	130	
BLD16-19V1	438399		198	200	2	Mdst/Sltst	Drk Gry	2.5	D3	130	
BLD16-19V1	438400		200	202	2				D-Mud	35	*Added
BLD16-19V1	433279		202	204	2	Mdst/Sltst	Drk Gry	2.5	D-Mud	35	
BLD16-19V1	433280		204	206	2	Mdst/Sltst	Drk Gry	2.5	D-Mud	35	
BLD16-19V1	433281		206	208	2	Mdst/Sltst	Drk Gry	2.5	D2	140	
BLD16-19V1	433282		208	210	2	Mdst/Sltst	Drk Gry	2.5	D2	140	
BLD16-19V1	433283	433300	210	246	38	Sltst/Sh	Drk Gry	3	CWS	40	
BLD16-19V1	433401	433408	246	262	16	Sltst/Sh	Drk Gry	3	CWS	40	
BLD16-19V1	433409		262	264	2	OO/Sltst	Drk Gry	3	CWS	40	E-Bed?

Drill Hole Log

Hole ID	BLD16-19V1	Logged By:	SDK	Dates:		Type	RC
North	424372.8	Depth	312	Log Date	6/23/16	Sent to Lab	7/29/16
East	842211.1	Hole Angle	90	Drill start	6/23/16	Received from lab	8/1/16
Elevation	6623.608	Hole Bearing		Drill End	6/23/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-19V1	433410	433415	264	276	12	Sltst/Sh	Drk Gry	3	CWS	40	
BLD16-19V1	433416		276	277.9	1.9	Sltst	Drk Gry	3	C-Bed	240	
BLD16-19V1			277.9	278	0.1	Sltst	Drk Gry	3	FC	50	
BLD16-19V1	433417		278	279.9	1.9	Sltst	Drk Gry	3	B2	250	
BLD16-19V1			279.9	280	0.1	Sltst	Drk Gry	3	LW	60	
BLD16-19V1	433418		280	281.9	1.9	Sltst	Drk Gry	3	B1	270	
BLD16-19V1			281.9	282	0.1	Sltst	Drk Gry	3	CAP	70	
BLD16-19V1	433419		282	284	2	Sltst	Drk Gry	3	A-Bed	280	
BLD16-19V1	433420		284	286	2	Sltst	Drk Gry	3	A-Bed	280	
BLD16-19V1	433421		286	288	2	OO/Sltst	Drk Gry	3	A-Bed	280	
BLD16-19V1	433422		288	290	2	Mdst/Sh	Brn Gry	2	FWS	80	
BLD16-19V1	433423		290	291.9	1.9	Mdst/LMS	Brn Gry	2	FWS	80	H2O @ ~1 Gal/Min
BLD16-19V1			291.9	292	0.1	Blky	Lt Gry	3	FSM	81	
BLD16-19V1	433424	433426	292	298	6	Blky	Lt Gry	5	LMS	90	
BLD16-19V1	433427	433428	298	302	4	Breccia	Lt Yel/Gry	4.5	Fault	99	
BLD16-19V1	433429	433430	302	312	10	Blky	Lt Gry	5	LMS	90	

*162-184 MISSED A SAMPLE. ADDED ONE @ 202'?

Drill Hole Log

Hole ID	BLD16-21A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	424922.86	**Depth**	182	**Log Date**	7/14/16	**Sent to Lab**	
East	842279.32	**Hole Angle**	50	**Drill start**	6/22/16	**Received from lab**	
Elevation	6631.389	**Hole Bearing**	310	**Drill End**	6/22/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-21A1	779213		0	5	5	Mdst	Tan	2	Alluv	10	
BLD16-21A1	779214	779216	5	22	17	Mdst/CHT	Drk Brn	2.5	Alluv	10	Calc Veins
BLD16-21A1	779217	779251	22	182	160	CHT	Blk	4	CHT	20	Pyrite @ 157'

* Abandon hole stuck pipe & caving conditions

Drill Hole Log

Hole ID	BLD16-21A2	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	842280.76	**Depth**	212	**Log Date**	7/9/16	**Sent to Lab**	7/26/16
East	424929.98	**Hole Angle**	50	**Drill start**	6/12/16	**Received from lab**	7/29/16
Elevation	6631.737	**Hole Bearing**	255	**Drill End**	6/12/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-21A2			0	5	5	Mdst	Tan	2	Alluv	10	
BLD16-21A2			5	22	17	Mdst/CHT	Drk Brn	2.5	Alluv	10	
BLD16-21A2			22	25	3	CHT/Mdst	Gry/Blk	4	CHT	20	
BLD16-21A2	779252	779288	25	168	143	CHT/Mdst	Gry/Blk	4	CHT	20	Calc Veins & Pyrite @ 137-150'
BLD16-21A2	779289	779291	170	176	6	LMS	Lt Blue	4	CHT	20	Alt CHT
BLD16-21A2	779292	779294	176	182	6	Calc Mdst	Gry	3	UW	30	
BLD16-21A2	779295	779297	182	188	6	Calc Mdst	Blk	2.5	UW	30	
BLD16-21A2	779298	779299	188	192	4	Course Mdst	Gry	3	UW	30	
BLD16-21A2	779300		192	194	2	Calc Mdst	Gry	3	UW	30	
BLD16-21A2	779301		194	196	2	Calc Mdst	Gry	3	UW	30	
BLD16-21A2	779302		196	198	2	Calc Mdst	Gry	3	D3	130	
BLD16-21A2	779303		198	200	2	Mdst/Sh	Blk	3	D3	130	
BLD16-21A2	779304		200	202	2	Mdst/Sh	Blk	3	D-Mud	35	
BLD16-21A2	779305		202	204	2	Mdst/Sh	Blk	3	D-Mud	35	
BLD16-21A2	779306		204	206	2	Course Sltst	Gry	3.5	D2	140	
BLD16-21A2	779307		206	208	2	Course Sltst	Gry	3.5	D2	140	
BLD16-21A2	779308		208	210	2	Course Sltst	Gry	3.5	D2	140	
BLD16-21A2	779309		210	212	2	Course Sltst	Gry	3.5	D2	140	

*No samples collected for 0-22' interpretation from BLD16-21A1

* Abandon hole

Drill Hole Log

Hole ID	BLD16-21V1	Logged By:	SDK	Dates:		Type	RC
North	424928.26	Depth	432	Log Date	7/14/16	Sent to Lab	7/26/16
East	842285.24	Hole Angle	90	Drill start	6/21/16	Received from lab	7/29/16
Elevation	6631.507	Hole Bearing		Drill End	6/22/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-21V1	779067		0	5	5	Mdst	Tan	2	Alluv	10	
BLD16-21V1	779068	779106	5	202	197	CHT/Mdst	Gry/Blk	4	CHT	20	Calc Veins & Pyrite @ 182'
BLD16-21V1	779107		202	207	5	LMS	Lt Blue	4	CHT	20	Alt CHT
BLD16-21V1	779108	779111	207	224	17	Calc Mdst	Blk	3	UW	30	
BLD16-21V1	779112		224	226	2	Mdst/Sh	Blk	3	UW	30	H2O & Calc
BLD16-21V1	779113		226	228	2	Mdst/Sh	Blk	3	D3	130	H2O & Calc
BLD16-21V1	779114		228	230	2	Mdst/Sh	Blk	2.5	D3	130	H2O & Calc
BLD16-21V1	779115		230	231.9	1.9	Mdst/Sh	Blk	2.5	D3	130	H2O & Calc
BLD16-21V1			232	232	0.1	Mdst/Sh	Blk	2.5	D-Mud	35	
BLD16-21V1	779116		232	234	2	Mdst/Sh	Blk	2.5	D2	140	H2O & Calc
BLD16-21V1	779117		234	236	2	Course Sltst	Gry	3.5	D2	140	H2O & Calc
BLD16-21V1	779118		236	238	2	Sltst/Mdst	Blk	3	D2	140	H2O & Calc
BLD16-21V1	779119	779172	238	346	108	Mdst/Sh	Blk	3	CWS	40	H2O @ 256' ~15 Gal/Min
BLD16-21V1	779173	779176	346	354	8	Calc Mdst	Brn/Gry	3	CWS	40	
BLD16-21V1	779177	779184	354	370	16	Sh	Blk	3	CWS	40	Calc Veins
BLD16-21V1	779185	779186	370	374	4	Mdst	Gry	2	CWS	40	
BLD16-21V1	779187		374	376	2	Sh	Gry	2	CWS	40	
BLD16-21V1	779188		376	378	2	Sh	Gry	2	CWS	40	
BLD16-21V1	779189		378	380	2	Sh	Gry	2	CWS	40	
BLD16-21V1	779190		380	382	2	Sltst	Blk	2.5	C-Bed	240	
BLD16-21V1	779191		382	384	2	Sh/Sltst	Gry/Blk	2.5	FC	50	Calc Veins
BLD16-21V1	779192		384	386	2	Sh/Sltst	Gry/Blk	2.5	FC	50	Calc Veins
BLD16-21V1	779193		386	387.9	1.9	Sltst	Blk	3	B2	250	Calc Veins
BLD16-21V1			388	388	0.1	Sltst	Blk	3	LW	60	
BLD16-21V1	779194		388	390	2	Sltst	Blk	3	B1	260	Calc Veins
BLD16-21V1	779195		390	392	2	Sltst	Blk	3	B1	260	Calc Veins
BLD16-21V1	779196		392	394	2	Sltst	Blk	3	B1	260	
BLD16-21V1	779197		394	396	2	Sltst/Mdst	Gry/Blk	2.5	CAP	70	
BLD16-21V1	779198		396	398	2	Sltst	Gry/Blk	3	CAP	70	
BLD16-21V1	779199		398	400	2	Sh/Dolo	Lt Gry/Blk	3	CAP	70	
BLD16-21V1	779200		400	402	2	Sltst/Sh	Gry/Blk	2.5	CAP	70	

Drill Hole Log

Hole ID	BLD16-21V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	424928.26	**Depth**	432	**Log Date**	7/14/16	**Sent to Lab**	7/26/16
East	842285.24	**Hole Angle**	90	**Drill start**	6/21/16	**Received from lab**	7/29/16
Elevation	6631.507	**Hole Bearing**		**Drill End**	6/22/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-21V1	779201		402	404	2	Mdst	Gry/Blk	3	A-Bed	280	
BLD16-21V1	779202		404	406	2	OO SS	Gry/Blk	3	A-Bed	280	
BLD16-21V1	779203		406	408	2	OO SS	Gry/Blk	3	A-Bed	280	
BLD16-21V1	779204		408	410	2	Sltst/Mdst	Gry/Blk	3	FWS	80	
BLD16-21V1	779205		410	412	2	Sltst/Mdst	Lt Brn/Gry	2.5	FWS	80	
BLD16-21V1	779206		412	414	2	Calc Mdst	Brn/Gry	3	FSM	81	
BLD16-21V1	779207	779212	414	432	18	Blcky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-23V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	424672.973	**Depth**	62	**Log Date**	6/24/16	**Sent to Lab**	
East	841768.611	**Hole Angle**	90	**Drill start**	6/22/16	**Received from lab**	
Elevation	6830.113	**Hole Bearing**		**Drill End**	6/22/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-23V1	438152	438153	0	10	10	TS	BRN	2	Colluv	2	
BLD16-23V1	438154		10	15	5	Mdst/Sltst	BRN GRY	2.5	Colluv	2	
BLD16-23V1	438155		15	18	3	Mdst/Sltst	BRN GRY	3.5	Colluv	2	
BLD16-23V1	438156		18	20	2	Mdst/Sltst	BRN GRY	4.5	Colluv	2	
BLD16-23V1	438157		20	22	2	Mdst	LT BRN	2	Colluv	2	
BLD16-23V1	438158	438177	22	62	40	LMS	LT GRY	4.5	LMS	90	

Drill Hole Log

Hole ID	BLD16-24A1	Logged By:	SDK	Dates:		Type	RC
North	425172.56	Depth	252	Log Date	7/27/16	Sent to Lab	8/4/16
East	841906.12	Hole Angle	60	Drill start	7/27/16	Received from lab	8/9/16
Elevation	6736.127	Hole Bearing	255	Drill End	7/27/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-24A1	713507		0	5	5	Topsoil	Tan/Brn	2	Alluv	10	
BLD16-24A1	713508	713525	5	97	92	Blocky	Blk/Gry	4	CHT	20	Pyrite @ 87'
BLD16-24A1	713526		97	102	5	Dolo	Lt Blue	4	CHT	20	
BLD16-24A1	713527	713531	102	118	16	Sltst	Blk	2.5	UW	30	
BLD16-24A1	713532		118	120	2	Sltst	Blk	3	UW	30	
BLD16-24A1	713533		120	122	2	Sltst	Blk	3	UW	30	
BLD16-24A1	713534		122	124	2	Sltst	Blk	3	UW	30	
BLD16-24A1	713535		124	126	2	Sltst	Blk	3	UW	30	
BLD16-24A1	713536		126	128	2	Sltst	Blk	3	D3	130	
BLD16-24A1	713537		128	130	2	Sltst	Blk	3	D3	130	
BLD16-24A1	713538		130	132	2	Sltst	Blk	3	D3	130	
BLD16-24A1	713539		132	134	2	Sltst/Mdst	Blk	2.5	D3	130	
BLD16-24A1	713540		134	136	2	Sltst/Mdst	Blk	2.5	D-Mud	35	
BLD16-24A1	713541		136	138	2	Sltst/Mdst	Blk	2.5	D-Mud	35	
BLD16-24A1	713542		138	140	2	Sltst/Mdst	Blk	3	D-Mud	35	
BLD16-24A1	713543		140	142	2	Sltst/Mdst	Blk	2.5	D2	140	
BLD16-24A1	713544		142	144	2	Sltst	Blk	3	CWS	40	
BLD16-24A1	713545	713555	144	166	22	Sltst/Mdst	Blk	3	CWS	40	
BLD16-24A1	713556	713572	166	180	14	Mdst	Brn/Blk	2.5	CWS	40	
BLD16-24A1	713563	713573	180	198	18	Sltst	Blk	3	CWS	40	
BLD16-24A1	713574		198	200	2	Sltst/Mdst	Brn/Blk	2.5	CWS	40	
BLD16-24A1	713573	713575	200	206	6	Calc Mdst	Gry/Brn	3.5	CWS	40	
BLD16-24A1	713576	713579	206	214	8	Sltst/Mdst	Brn/Blk	2.5	CWS	40	
BLD16-24A1	713580		214	216	2	Mdst	Drk Brn	2	CWS	40	
BLD16-24A1	713581		216	218	2	Sltst	Gry	3	CWS	40	
BLD16-24A1	713582		218	220	1.7	Sltst	Gry	3	CWS	40	
BLD16-24A1			220	220	0.1	Sltst	Gry	3	C-Bed	240	flt?
BLD16-24A1			220	220	0.1	Sltst	Gry	3	FC	50	
BLD16-24A1			220	220	0.1	Sltst	Gry	3	B2	250	
BLD16-24A1	713583		220	222	2	Sltst/Mdst	Blk/Gry	2.5	LW	60	Calc

Drill Hole Log

Hole ID	BLD16-24A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425172.56	**Depth**	252	**Log Date**	7/27/16	**Sent to Lab**	8/4/16
East	841906.12	**Hole Angle**	60	**Drill start**	7/27/16	**Received from lab**	8/9/16
Elevation	6736.127	**Hole Bearing**	255	**Drill End**	7/27/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-24A1	713584		222	224	2	Sltst	Blk	2.5	B1	260	
BLD16-24A1	713585		224	226	2	Sltst	Blk	2.5	CAP	70	
BLD16-24A1	713586		226	228	2	Mdst/Sltst	Brn/Blk	2	CAP	70	
BLD16-24A1	713587		228	230	2	Mdst/Sltst	Brn/Blk	2	A-Bed	280	
BLD16-24A1	713588		230	232	2	Mdst/Sltst	Brn/Blk	2	A-Bed	280	
BLD16-24A1	713589		232	234	1.8	Mdst	Brn	2	A-Bed	280	
BLD16-24A1			234	234	0.1	Mdst	Brn	2	FWS	80	
BLD16-24A1			234	234	0.1	Mdst	Brn	2	FSM	81	
BLD16-24A1	713590	713595	234	252	18	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-24V1	Logged By:	SDK	Dates:		Type	RC
North	425170.97	Depth	322	Log Date	8/8/16	Sent to Lab	8/15/16
East	841901.37	Hole Angle	90	Drill start	7/26/16	Received from lab	8/31/16
Elevation	6736.589	Hole Bearing		Drill End	7/26/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-24V1	714393	714395	0	15	15	Mdst/CHT	Tan/Brn	2.5	Alluv	10	
BLD16-24V1	714396	714025	15	152	137	Blocky	Gry/Blk	4	CHT	20	Pyrite @ 107-127'
BLD16-24V1	714026	714027	152	156	4	Crystn/Dolo	Blue/Gry	4	CHT	20	
BLD16-24V1	714028	714030	156	162	6	Blocky	Blk/Gry	4	CHT	20	
BLD16-24V1	714031	714032	162	166	4	Dolo	Blue/Gry	4	CHT	20	Some Alt. Cht (Pitted)
BLD16-24V1	714033	714035	166	172	6	Calc Mst	Gry	3	UW	30	
BLD16-24V1	714036	714038	172	178	6	Sltst	Blk	3	UW	30	
BLD16-24V1	714039		178	180	2	Calc Mst	Gry	3	UW	30	
BLD16-24V1	714040	714042	180	186	6	Sltst/Mdst	Blk	2.5	UW	30	
BLD16-24V1	714043		186	188	2	Sltst/Mdst	Gry	3	UW	30	
BLD16-24V1	714044		188	190	2	Sltst/Mdst	Gry	3	UW	30	
BLD16-24V1	714045		190	192	2	Sltst/Mdst	Gry	3	UW	30	
BLD16-24V1	714046		192	194	2	Sltst/Mdst	Gry	3	D3	130	
BLD16-24V1	714047		194	196	2	Sltst	Blk	3	D3	130	
BLD16-24V1	714048		196	198	2	Sltst	Blk	3	D3	130	
BLD16-24V1	714049		198	200	2	Sltst	Blk	3	D3	130	
BLD16-24V1	714050		200	202	2	Sltst	Blk	3	D3	130	
BLD16-24V1	714051		202	204	2	Sltst	Blk	3	D-Mud	35	
BLD16-24V1	714052		204	206	2	Mdst	Gry	3	D2	140	
BLD16-24V1	714053		206	208	2	Mdst	Gry	3	CWS	40	
BLD16-24V1	714054		208	210	2	Mdst	Gry	3	CWS	40	
BLD16-24V1	714055		210	212	2	Sltst/Sh	Blk	2.5	CWS	40	
BLD16-24V1	714056		212	214	2	Sltst/Sh	Blk	2.5	CWS	40	
BLD16-24V1	714057	714070	214	242	28	Sltst/Sh	Drk Gry	2.5	CWS	40	
BLD16-24V1	714071		242	244	2	Mdst/Sh	Blk	2	CWS	40	Sample Bags: 714072, 714074 gone
BLD16-24V1	714073		244	246	2	Mdst/Sh	Blk	2	CWS	40	
BLD16-24V1	714075		246	248	2	Sltst/Mdst	Brn/Blk	2.5	CWS	40	
BLD16-24V1	714076	714082	248	262	14	Sltst/Mdst	Brn/Blk	3	CWS	40	
BLD16-24V1	714083	714094	262	286	24	Sltst/Sh	Gry/Brn	2.5	CWS	40	E-Bed @ 271'
BLD16-24V1	714095		286	288	2	Sltst/Sh	Drk Gry	2.5	CWS	40	

Drill Hole Log

Hole ID	BLD16-24V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425170.97	**Depth**	322	**Log Date**	8/8/16	**Sent to Lab**	8/15/16
East	841901.37	**Hole Angle**	90	**Drill start**	7/26/16	**Received from lab**	8/31/16
Elevation	6736.589	**Hole Bearing**		**Drill End**	7/26/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-24V1	714096		288	289.9	1.9	Sltst/Sh	Drk Gry	2.5	C-Bed	240	
BLD16-24V1			289.9	290	0.1	Sltst/Sh	Drk Gry	2.5	FC	50	
BLD16-24V1	714097		290	292	2	Sltst/Mdst	Brn/Gry	2.5	B2	250	
BLD16-24V1	714098		292	294	2	Sltst/Mdst	Brn/Gry	2.5	B2	250	
BLD16-24V1	714099		294	295.9	1.9	Sltst	Brn/Gry	3	B2	250	
BLD16-24V1			295.9	296	0.1	Sltst	Brn/Gry	3	LW	60	
BLD16-24V1	714100		296	297.9	1.9	Sltst/Mdst	Brn/Gry	2.5	B1	260	
BLD16-24V1			297.9	298	0.1	Sltst/Mdst	Brn/Gry	2.5	CAP	70	
BLD16-24V1	713501		298	299.8	1.8	Mdst/LMS	Brn/Gry	2	A-Bed	280	
BLD16-24V1			299.8	299.9	0.1	Mdst/LMS	Brn/Gry	2	FWS	80	
BLD16-24V1			299.9	300	0.1	Mdst/LMS	Brn/Gry	2	FSM	81	
BLD16-24V1	713502	713507	300	322	22	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-25V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425010.98	**Depth**	52	**Log Date**	6/24/16	**Sent to Lab**	8/1/16
East	841470.74	**Hole Angle**	90	**Drill start**	6/21/16	**Received from lab**	8/3/16
Elevation	6883.646	**Hole Bearing**		**Drill End**	6/21/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-25V1	438131	438133	0	15	15	Mdst	Brn	2	Colluv	2	
BLD16-25V1	438134		15	17	2	Mdst/Sh	Brn/Gry	2.5	Colluv	2	
BLD16-25V1	438135		17	19	2	Mdst/Sh	Brn/Gry	2.5	Colluv	2	
BLD16-25V1	438136		19	22	3	Mdst/Sh	Brn/Gry	2.5	Colluv	2	
BLD16-25V1	438137		22	24	2	Mdst/Sh	Brn/Gry	2.5	ABED	280	
BLD16-25V1	438138		24	26	2	Mdst/Sltst	Drk Brn	2.5	FWS	80	
BLD16-25V1	438139		26	28	2	Mdst	Drk Brn	3	FWS	80	
BLD16-25V1	438140		28	30	2	Mdst	Drk Brn	4	FSM	81	
BLD16-25V1	438141		30	32	2	LMS	Lt Gry	3	LMS	90	
BLD16-25V1	438142	438151	32	52	20	LMS	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-26A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425569.58	**Depth**	182	**Log Date**	7/22/16	**Sent to Lab**	8/1/16
East	841665.83	**Hole Angle**	50	**Drill start**	7/13/16	**Received from lab**	8/3/16
Elevation	6781.794	**Hole Bearing**	255	**Drill End**	7/13/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-26A1	511662	511666	0	25	25	Blocky	Tan/Gry	4	Alluv	10	
BLD16-26A1	511667	511679	25	94	69	Blocky	Gry/Blk	4	CHT	20	
BLD16-26A1	511680		94	96	2	Mdst	Silver/Gry	3	Fault	99	
BLD16-26A1	511681	511683	96	102	6	Mdst/Sh	Blk	2.5	CWS	40	
BLD16-26A1	511684	511687	102	110	8	Mdst	Brn	2	CWS	40	
BLD16-26A1	511688	511693	110	122	12	Mdst/Sh	Blk	2.5	CWS	40	E-Bed @114'
BLD16-26A1	511694	511696	122	128	6	Mdst	Brn	2	CWS	40	
BLD16-26A1	511697	511700	128	136	8	Mdst/Sh	Blk	2.5	CWS	40	
BLD16-26A1	511701		136	138	2	Mdst/Sltst	Blk	2.5	CWS	40	
BLD16-26A1	511702		138	140	2	Mdst/Sltst	Blk	2.5	C-Bed	240	
BLD16-26A1	511703		140	142	2	Mdst	Blk	2	FC	50	
BLD16-26A1	511704		142	144	1.9	Mdst/Sltst	Brn/Gry	2	B2	250	
BLD16-26A1			144	144	0.1	Mdst/Sltst	Brn/Gry	2	LW	60	
BLD16-26A1	511705		144	146	2	Sltst	Gry	3	B1	260	
BLD16-26A1	511706		146	148	1.9	Sltst	Gry	3	B1	260	
BLD16-26A1			148	148	0.1	Sltst	Gry	3	CAP	70	
BLD16-26A1	511707		148	150	2	Mdst/Sh	Brn/Gry	2.5	A-Bed	280	
BLD16-26A1	511708		150	152	2	Mdst/Sh	Brn/Gry	2.5	A-Bed	280	
BLD16-26A1	511709		152	154	2	Sltst	Blk	3	A-Bed	280	
BLD16-26A1	511710		154	156	2	Mdst	Drk Brn	2	A-Bed	280	
BLD16-26A1	511711		156	158	2	Mdst	Brn	2	FWS	80	
BLD16-26A1	511712		158	160	2	Mdst	Brn/Gry	2.5	FSM	81	
BLD16-26A1	511713	511720	160	182	22	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-26V1	Logged By:	SDK	Dates:		Type	RC
North	425573.18	Depth	302	Log Date	7/22/16	Sent to Lab	8/1/16
East	841671.94	Hole Angle	90	Drill start	7/11/16	Received from lab	8/3/16
Elevation	6780.963	Hole Bearing		Drill End	7/11/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-26V1	1501	1502	0	10	10	Mdst/CHT	Tan/Gry	4	Alluv	10	
BLD16-26V1	1503	1567	10	116	106	Blocky	Gry/Blk	4	CHT	20	
BLD16-26V1	1568	1569	116	120	4	Dolo	Lt Blue	4	CHT	20	Alt.CHT
BLD16-26V1	1570	1574	120	130	10	Blocky	Blk	4	CHT	20	
BLD16-26V1	1575	1576	130	134	4	CHT	Lt Gry	4	CHT	20	
BLD16-26V1	1577	1578	134	138	4	Dolo	Lt Blue	4	CHT	20	Pitted
BLD16-26V1	1579	1588	138	158	20	Sltst	Blk	3	UW	30	
BLD16-26V1	1589	1590	158	162	4	Mdst/Sh	Brn	3	UW	30	
BLD16-26V1	1591		162	164	2	Sltst	Blk	3	UW	30	
BLD16-26V1	1592		164	166	2	Sltst	Blk	3	UW	30	
BLD16-26V1	1593		166	168	2	Sltst	Blk	3	D3	130	
BLD16-26V1	1594		168	170	2	Sltst	Blk	3	D3	130	
BLD16-26V1	1595		170	172	2	Mdst	Blk	3	D3	130	
BLD16-26V1	1596		172	174	2	Sltst	Blk	3	D-Mud	35	
BLD16-26V1	1597		174	176	2	Sltst	Blk	3	D2	140	
BLD16-26V1	1598		176	178	2	Sltst	Blk	3	D2	140	
BLD16-26V1	1599	1616	178	214	36	Sltst	Blk	3	CWS	40	
BLD16-26V1	1617	1622	214	226	12	Mdst	Brn	3	CWS	40	
BLD16-26V1	1623	1639	226	260	34	Mdst/Sh	Brn/Blk	3	CWS	40	No Gamma;Sample/DLC
BLD16-26V1	1640		260	262	2	Mdst/Sltst	Blk	3	CWS	40	
BLD16-26V1	1641		262	264	2	Mdst	Gry/Brn	2.5	CWS	40	
BLD16-26V1	1642		264	266	2	Mdst	Drk Brn	1	CWS	40	
BLD16-26V1	1643		266	268	2	Mdst	Drk Brn	1	CWS	40	
BLD16-26V1	1644		268	270	2	Mdst	Drk Brn	1	C-Bed	240	
BLD16-26V1	1645		270	272	2	Mdst	Lt Brn	2.5	C-Bed	240	
BLD16-26V1	1646		272	274	2	Mdst/Sltst	Lt Brn	2.5	Fault	99	
BLD16-26V1	1647		274	276	2	Blocky	Lt Gry	4	Fault	99	
BLD16-26V1	1648	1650	276	282	6	Blocky	Lt Gry	5	Fault	99	
BLD16-26V1	1651	1658	282	298	16	Mdst	Brn	2	Fault	99	
BLD16-26V1	1659	1661	298	302	4	LMS/Mdst	Mixed	3	LMS	90	

Drill Hole Log

Hole ID	BLD16-27A1	Logged By:	SDK	Dates:		Type	RC
North	425838.981	Depth	312	Log Date	8/15/16	Sent to Lab	8/29/16
East	841716.065	Hole Angle	55	Drill start	7/19/16	Received from lab	9/6/16
Elevation	6752.607	Hole Bearing	255	Drill End	7/19/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-27A1	751853	751855	0	15	15	Mdst/Cht	Tan/Gry	3	Alluv	10	
BLD16-27A1	751856	751892	15	118	103	Blocky	Drk Gry	4	CHT	20	
BLD16-27A1	751893		118	120	2	Alt.	Orange	3	CHT	20	
BLD16-27A1	751894		120	122	2	Dolo	Mixed	4	CHT	20	
BLD16-27A1	751895	751904	122	142	20	Sltst/Mdst	Blk	3	UW	30	
BLD16-27A1	751905		142	144	2	Sltst	Gry	4	UW	30	Calc Fract
BLD16-27A1	751906		144	146	2	Sltst	Gry	3	D3	130	
BLD16-27A1	751907		146	148	2	Sltst	Gry	3	D-Mud	35	
BLD16-27A1	751908		148	150	2	Sltst	Blk	3	D2	140	
BLD16-27A1	751909		150	152	2	Sltst	Blk	3	D2	140	
BLD16-27A1	751910		152	154	2	Sltst	Blk	3	D2	140	
BLD16-27A1	751911		154	156	2	Sltst	Blk	3	D2	140	
BLD16-27A1	751912		156	158	2	Mdst	Drk Gry	2.5	D2	140	
BLD16-27A1	751913		158	160	2	Mdst	Drk Gry	2.5	D2	140	
BLD16-27A1	751914		160	162	2	Sltst	Blk	3	D2	140	
BLD16-27A1	751915		162	164	2	Sltst	Blk	3	CWS	40	
BLD16-27A1	751916		164	166	2	Sltst	Blk	3	CWS	40	
BLD16-27A1	751917	751932	166	198	32	Calc Sltst	Blk	3	CWS	40	
BLD16-27A1	751933	751937	198	208	10	Sltst/Mdst	Brn/Blk	3	CWS	40	
BLD16-27A1	751938	751951	208	236	28	Sltst	Blk	3	CWS	40	E-Bed @ 220'
BLD16-27A1	751952	751953	236	240	4	Mdst	Brn	3	CWS	40	
BLD16-27A1	751954	751959	240	252	12	Sltst	Blk	3	CWS	40	
BLD16-27A1	751960		252	254	2	Sltst	Blk	3	C-Bed	240	
BLD16-27A1	751961		254	256	2	Sltst	Blk	3	C-Bed	240	
BLD16-27A1	751962		256	258	2	Sltst	Blk	2.5	FC	50	
BLD16-27A1	751963		258	260	2	Mdst	Drk Brn	2	FC	50	
BLD16-27A1	751964		260	262	2	Sltst/Mdst	Brn/Blk	2.5	FC	50	
BLD16-27A1	751965		262	264	2	Sltst/Mdst	Brn/Blk	2.5	FC	50	
BLD16-27A1	751966		264	266	2	Sltst	Drk Gry	3	B2	250	
BLD16-27A1	751967		266	268	2	Sltst/Mdst	Drk Gry	3	B2	250	

Drill Hole Log

Hole ID	BLD16-27A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425838.981	**Depth**	312	**Log Date**	8/15/16	**Sent to Lab**	8/29/16
East	841716.065	**Hole Angle**	55	**Drill start**	7/19/16	**Received from lab**	9/6/16
Elevation	6752.607	**Hole Bearing**	255	**Drill End**	7/19/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-27A1	751968		268	270	2	Calc Mdst	Brn	3	LW	60	
BLD16-27A1	751969		270	272	2	Calc Mdst	Brn	3	B1	260	
BLD16-27A1	751970		272	273.9	1.9	Sltst/SS	Brn/Blk	3	B1	260	
BLD16-27A1			274	274	0.1	Sltst/SS	Brn/Blk	3	CAP	70	
BLD16-27A1	751971		274	276	2	Sltst/SS	Blk	3	A-Bed	280	
BLD16-27A1	751972		276	278	2	Sltst	Gry	3	A-Bed	280	
BLD16-27A1	751973		278	280	2	Mdst	Drk Brn	2.5	A-Bed	280	
BLD16-27A1	751974		280	282	2	Mdst	Blk	2	A-Bed	280	
BLD16-27A1	751975		282	284	2	Mdst	Drk Brn	2.5	FWS	80	
BLD16-27A1	751976		284	286	2	Sltst/Mdst	Brn	3	FSM	81	
BLD16-27A1	751977	751983	286	312	26	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-27V1	Logged By:	SDK	Dates:		Type	RC
North	425840.16	Depth	302	Log Date	8/9/16	Sent to Lab	8/29/16
East	841722.81	Hole Angle	90	Drill start	7/18/16	Received from lab	9/6/16
Elevation	6752.336	Hole Bearing		Drill End	7/18/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-27V1	751721	751723	0	15	15	Blocky	Tan/Brn	3	Alluv	10	
BLD16-27V1	751724	751753	15	92	77	Blocky		4	CHT	20	Pyrite @ 62-70'
BLD16-27V1	751754		92	94	2	Sltst/Mdst		2.5	UW	30	
BLD16-27V1	751755		94	96	2	Sltst/Mdst		2.5	UW	30	
BLD16-27V1	751756		96	98	2	Mdst		2	UW	30	
BLD16-27V1	751757		98	100	2	Sltst/Mdst		2.5	UW	30	
BLD16-27V1	751758		100	102	2	Mdst		3	UW	30	
BLD16-27V1	751759		102	104	2	Mdst		4	UW	30	
BLD16-27V1	751760		104	106	2	Sltst/Mdst		2.5	D3	130	
BLD16-27V1	751761		106	108	2	Sltst/Mdst		2.5	D3	130	
BLD16-27V1	751762		108	110	2	Sltst		3	D3	130	
BLD16-27V1	751763		110	112	2	Sltst		3	D3	130	
BLD16-27V1	751764		112	114	2	Mdst	Blk	3	D3	130	
BLD16-27V1	751765		114	116	2	Calc Mdst	Gry	4	D-Mud	35	
BLD16-27V1	751766		116	118	2	Sltst	Blk	3	D2	140	
BLD16-27V1	751767		118	120	2	Sltst/Mdst	Blk	2.5	D2	140	
BLD16-27V1	751768		120	122	2	Sltst	Blk	3	D2	140	
BLD16-27V1	751769		122	124	2	Sltst	Blk	3	CWS	40	
BLD16-27V1	751770	751779	124	172	48	Sltst/Sh	Drk Gry/Blk	3	CWS	40	
BLD16-27V1	751780	751801	172	188	16	Chty Mdst	Drk Gry	4	CWS	40	
BLD16-27V1	751802	751809	188	204	16	Sltst	Blk	3	CWS	40	
BLD16-27V1	751810	751821	204	228	24	Calc Mdst	Brn/Blk	3	CWS	40	
BLD16-27V1	751822		228	230	2	Mdst	Blk	2	CWS	40	
BLD16-27V1	751823		230	232	2	Mdst	Blk	2	C-Bed	240	
BLD16-27V1	751824		232	234	2	Mdst	Brn/Blk	2	FC	50	
BLD16-27V1	751825		234	236	2	Mdst	Blk	2	FC	50	
BLD16-27V1	751826		236	238	2	Mdst	Brn/Blk	2	FC	50	
BLD16-27V1	751827		238	240	2	Sltst	Blk	3	B2	250	
BLD16-27V1	751828		240	242	2	Sltst	Blk	3	B2	250	
BLD16-27V1	751829		242	244	2	Sltst	Blk	3	B2	250	

Drill Hole Log

Hole ID	BLD16-27V1	Logged By:	SDK	Dates:		Type	RC
North	425840.16	Depth	302	Log Date	8/9/16	Sent to Lab	8/29/16
East	841722.81	Hole Angle	90	Drill start	7/18/16	Received from lab	9/6/16
Elevation	6752.336	Hole Bearing		Drill End	7/18/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-27V1	751830		244	245.9	1.9	Sltst/Mdst	Brn/Blk	2.5	B2	250	
BLD16-27V1			246	246	0.1	Sltst/Mdst	Brn/Blk	2.5	LW	60	
BLD16-27V1	751831		246	248	2	Sltst/Mdst	Brn/Blk	2.5	B1	260	
BLD16-27V1	751832		248	250	2	Sltst	Blk	2.5	B1	260	
BLD16-27V1	751833		250	252	2	Sltst/Mdst	Brn/Blk	2.5	B1	260	
BLD16-27V1	751834		252	254	2	Sltst	Blk	3	B1	260	
BLD16-27V1	751835		254	256	2	Calc Mdst	Tan/Brn	3	CAP	70	
BLD16-27V1	751836		256	258	2	Sltst	Blk	2.5	A-Bed	280	
BLD16-27V1	751837		258	260	2	Sltst	Blk	2.5	A-Bed	280	
BLD16-27V1	751838		260	262	2	Calc Mdst	Tan/Brn	3	A-Bed	280	
BLD16-27V1	751839		262	264	2	Mdst/Sltst	Brn	2	A-Bed	280	
BLD16-27V1	751840		264	266	2	Mdst/Sltst	Brn	2	A-Bed	280	
BLD16-27V1	751841		266	268	2	Mdst	Brn	2	A-Bed	280	
BLD16-27V1	751842		268	270	2	Mdst	Drk Brn	2	A-Bed	280	
BLD16-27V1	751843		270	272	2	Mdst	Drk Brn	2.5	A-Bed	280	
BLD16-27V1	751844		272	274	2	Mdst/Sltst	Brn/Blk	3	FWS	80	
BLD16-27V1	751845		274	276	2	Mdst	Brn	2	FWS	80	
BLD16-27V1	751846		276	278	2	Mdst/Sltst	Brn/Blk	3	FSM	81	
BLD16-27V1	751847	751852	278	302	24	Blocky	Lt Gry/Blk	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-28A1	Logged By:	SDK	Dates:		Type	RC
North	425988.06	Depth	322	Log Date	7/26/16	Sent to Lab	8/31/16
East	841517.44	Hole Angle	60	Drill start	7/8/16	Received from lab	9/6/16
Elevation	6770.552	Hole Bearing	255	Drill End	7/8/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-28A1	759753		0	5	5	Chty Tpsoil	Tan	3	Alluv	10	
BLD16-28A1	759754	759772	5	102	97	Blocky	Blk/Gry	4	CHT	20	
BLD16-28A1	759773	759776	102	110	8	Cryst	Lt Blue	4	CHT	20	Dolo & Alt CHT
BLD16-28A1	759777	759782	110	122	12	Mdst	Brn/Blk	3	UW	30	
BLD16-28A1	759783	759786	122	130	8	Sltst	Blk	2.5	UW	30	
BLD16-28A1	759787		130	132	2	Mdst/Sltst	Brn/Blk	3	UW	30	
BLD16-28A1	759788		132	134	2	Mdst/Sltst	Brn/Blk	3	UW	30	
BLD16-28A1	759789		134	136	2	Mdst/Sltst	Brn/Blk	3	UW	30	
BLD16-28A1	759790		136	138	2	Mdst/Sltst	Brn/Blk	3	UW	30	
BLD16-28A1	759791		138	140	2	Sltst	Blk	3	D2	130	
BLD16-28A1	759792		140	141.9	1.9	Sltst	Blk	2	D2	130	
BLD16-28A1			142	142	0.1	Sltst	Blk	2	D-Mud	35	
BLD16-28A1	759793		142	144	2	Mdst	Brn	3	D3	140	
BLD16-28A1	759794		144	146	2	Sltst	Blk	3	D3	140	
BLD16-28A1	759795		146	148	2	Sltst/Mdst	Blk/Brn	2	D3	140	
BLD16-28A1	759796		148	150	2	Sltst	Blk	2.5	D3	140	
BLD16-28A1	759797		150	152	2	Sltst	Blk	2.5	D3	140	
BLD16-28A1	759798		152	154	2	Sltst	Blk	2.5	D3	140	
BLD16-28A1	759799		154	156	2	Sltst	Blk	3	CWS	40	
BLD16-28A1	759800		156	158	2	Sltst	Blk	3	CWS	40	
BLD16-28A1	1400		158	160	2	Sltst	Blk	3	CWS	40	
BLD16-28A1	1401	1411	160	180	20	Sltst/Mdst	Blk	3	CWS	40	
BLD16-28A1	1412	1416	180	190	10	Mdst	Brn	2	CWS	40	
BLD16-28A1	1417	1421	190	200	10	Sltst	BlK	3	CWS	40	
BLD16-28A1	1422	1433	200	224	24	Sltst/Mdst	Brn/Blk	2.5	CWS	40	
BLD16-28A1	1434	1439	224	236	12	Mdst/Sh	Blk	2	CWS	40	E-Bed @ 226'
BLD16-28A1	1440	1450	236	258	22	Sltst/Mdst	Brn/Blk	3	CWS	40	
BLD16-28A1	1451		258	260	2	Sltst/Mdst	Brn/Gry	2.5	C-Bed	240	
BLD16-28A1	1452		260	262	2	Sltst/Mdst	Brn/Gry	2.5	C-Bed	240	
BLD16-28A1	1453		262	264	2	Sltst/Mdst	Brn/Gry	2.5	C-Bed	240	

Drill Hole Log

Hole ID	BLD16-28A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425988.06	**Depth**	322	**Log Date**	7/26/16	**Sent to Lab**	8/31/16
East	841517.44	**Hole Angle**	60	**Drill start**	7/8/16	**Received from lab**	9/6/16
Elevation	6770.552	**Hole Bearing**	255	**Drill End**	7/8/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-28A1	1454		264	266	2	Sltst/Mdst	Brn/Gry	2.5	FC	50	
BLD16-28A1	1455		266	268	2	Calc Mdst	Gry/Brn	3.5	FC	50	
BLD16-28A1	1456		268	270	2	Sltst/Mdst	Brn/Blk	3	B2	250	
BLD16-28A1	1457		270	272	2	Calc Mdst	Brn/Gry	2.5	LW	60	
BLD16-28A1	1458		272	274	2	Sltst	Blk	3	B1	260	
BLD16-28A1	1459		274	276	2	Calc Mdst	Blk/Brn	3	B1	260	
BLD16-28A1	1460		276	278	2	Calc Mdst	Blk/Brn	3	B1	260	
BLD16-28A1	1461		278	280	2	Sltst	Blk	3	CAP	70	
BLD16-28A1	1462		280	282	2	Sltst	Blk	3	CAP	70	
BLD16-28A1	1463		282	284	2	Sltst/Mdst	Gry/Brn	3	CAP	70	
BLD16-28A1	1464		284	286	2	Sltst/Mdst	Gry/Brn	3	CAP	70	
BLD16-28A1	1465		286	288	2	Sltst/Mdst	Gry/Brn	3	A-Bed	280	
BLD16-28A1	1466		288	290	2	Mdst	Brn	2	A-Bed	280	
BLD16-28A1	1467		290	292	2	Mdst	Brn	2.5	FWS	80	
BLD16-28A1	1468		292	294	2	Mdst	Brn	2.5	FWS	80	
BLD16-28A1	1469		294	296	2	Blocky	Gry/Blk	3	FSM	81	
BLD16-28A1	1470	1474	296	312	16	Blocky	Lt Gry	4	LMS	90	
BLD16-28A1	1475	1476	312	322	10	Mdst	Yel/Gry	2	LMS	90	

Drill Hole Log

Hole ID	BLD16-28V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425989.37	**Depth**	262	**Log Date**	7/26/16	**Sent to Lab**	8/31/16
East	841521.03	**Hole Angle**	90	**Drill start**	7/7/16	**Received from lab**	9/6/16
Elevation	6770.702	**Hole Bearing**		**Drill End**	7/7/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-28V1	721341	721342	0	10	10	Chty Topsoil	Tan	2.5	Alluv	10	
BLD16-28V1	721343	721378	10	102	92	Blocky	Drk Gry	4	CHT	20	
BLD16-28V1	721379		102	104	2	Dolo	Lt Blue	4	UW	30	
BLD16-28V1	721380		104	106	2	Sltst/Mdst	Gry	3	UW	30	
BLD16-28V1	721381		106	108	2	Sltst/Mdst	Gry	3	UW	30	
BLD16-28V1	721382		108	110	2	Sltst/Mdst	Gry	3	UW	30	
BLD16-28V1	721383	721392	110	130	20	Mdst	Brn	3	UW	30	
BLD16-28V1	721393		130	132	2	Sltst/Mdst	Brn/Blk	2.5	UW	30	
BLD16-28V1	721394		132	134	2	Sltst/Mdst	Brn/Blk	2.5	D3	130	
BLD16-28V1	721395		134	136	2	Sltst/Mdst	Brn/Blk	2.5	D3	130	
BLD16-28V1	721396		136	138	2	Sltst/Mdst	Brn/Blk	2.5	D3	130	
BLD16-28V1	721397		138	140	2	Sltst	Blk	3	D3	130	
BLD16-28V1	721398		140	142	2	Sltst/Mdst	Brn/Blk	2	D3	130	
BLD16-28V1	721399		142	144	2	Calc Mdst	Blk	2.5	D-Mud	35	
BLD16-28V1	721400		144	146	2	Calc Mdst	Blk	2.5	D2	140	
BLD16-28V1	759701		146	148	2	Calc Mdst	Blk	2.5	D2	140	
BLD16-28V1	759702		148	150	2	Calc Mdst	Blk	2.5	D2	140	
BLD16-28V1	759703	759707	150	160	10	Calc Mdst	Blk	2.5	CWS	40	*Possible FLT in CWS
BLD16-28V1	759708		160	162	2	Sltst/Mdst	Brn/Blk	2.5	CWS	40	E-Bed
BLD16-28V1	759709		162	164	2	Sltst	Blk	3	CWS	40	E-Bed
BLD16-28V1	759710	759725	164	196	32	Sltst/Mdst	Gry/Blk	2.5	CWS	40	
BLD16-28V1	759726		196	198	2	Sltst/SH	Blk	3	CWS	40	
BLD16-28V1	759727		198	200	2	Sltst/SH	Blk	2.5	CWS	40	
BLD16-28V1	759728		200	202	2	Calc Mdst	Gry	3	CWS	40	
BLD16-28V1	759729		202	204	2	Calc Mdst	Gry	3	CWS	40	
BLD16-28V1	759730		204	206	2	Sltst/SS	Drk Gry/Blk	3	C-Bed	240	
BLD16-28V1	759731		206	208	2	Calc Mdst	Gry	3	FC	50	
BLD16-28V1	759732		208	210	2	Calc Mdst	Gry	3	FC	50	
BLD16-28V1	759733		210	212	2	Sltst	Drk Gry	2.5	B2	250	

Drill Hole Log

Hole ID	BLD16-28V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425989.37	**Depth**	262	**Log Date**	7/26/16	**Sent to Lab**	8/31/16
East	841521.03	**Hole Angle**	90	**Drill start**	7/7/16	**Received from lab**	9/6/16
Elevation	6770.702	**Hole Bearing**		**Drill End**	7/7/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-28V1	759734		212	213.9	1.9	Sltst/Mdst	Gry/Brn	3	B2	250	
BLD16-28V1	750000		214	214	0.1	Sltst/Mdst	Gry/Brn	3	LW	60	
BLD16-28V1	759735		214	216	2	Sltst	Drk Gry	2.5	B1	260	
BLD16-28V1	759736		216	218	2	Sltst	Drk Gry	2.5	B1	260	
BLD16-28V1	759737		218	220	2	Mdst/Sltst	Gry	3	CAP	70	
BLD16-28V1	759738		220	222	2	Mdst/Sltst	Gry	3	CAP	70	
BLD16-28V1	759739		222	224	2	Mdst/Sltst	Gry	3	CAP	70	
BLD16-28V1	759740		224	226	2	Calc Mdst	Gry	3	A-Bed	280	
BLD16-28V1	759741		226	228	2	Sltst	Brn/Gry	2.5	A-Bed	280	
BLD16-28V1	759742		228	230	2	Sltst	Brn/Gry	3	A-Bed	280	
BLD16-28V1	759743		230	232	2	Sltst	Brn/Gry	3	A-Bed	280	
BLD16-28V1	759744		232	234	2	Sltst/Mdst	Brn/Gry	2.5	A-Bed	280	
BLD16-28V1	759745		234	236	2	Mdst	Brn	2	FWS	80	
BLD16-28V1	759746		236	238	2	Mdst	Brn	2	FWS	80	
BLD16-28V1	759747		238	240	2	Blocky	Gry/Blk	4	FSM	81	
BLD16-28V1	759748	759752	240	262	22	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-29A1	Logged By:	SDK	Dates:		Type	RC
North	425748	Depth	152	Log Date	7/26/16	Sent to Lab	8/1/16
East	841370.56	Hole Angle	50	Drill start	7/9/16	Received from lab	8/3/16
Elevation	6796.697	Hole Bearing	255	Drill End	7/9/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-29A1	759835	759838	0	18	18	Mdst	Drk Brn	2	CWS	40	
BLD16-29A1	759839	759850	18	44	26	Mdst/Sltst	Brn/Blk	3	CWS	40	E-Bed @ 42'
BLD16-29A1	759851	759858	44	60	16	Mdst/Sh	Drk Brn	2.5	CWS	40	
BLD16-29A1	759859	759863	60	70	10	Mdst	Lt Brn	3	CWS	40	
BLD16-29A1	759864	759869	70	82	12	Mdst/Sh	Drk Brn	2	CWS	40	
BLD16-29A1	759870		82	84	2	Mdst	Blk	2	C-Bed	240	
BLD16-29A1	759871		84	86	2	Mdst	Blk	2	C-Bed	240	
BLD16-29A1	759872		86	88	2	Mdst	Blk	2	FC	50	
BLD16-29A1	759873		88	90	2	Mdst	Blk	2	FC	50	
BLD16-29A1	759874		90	92	2	Mdst	Tan/Gry	2.5	FC	50	
BLD16-29A1	759875		92	94	2	Calc Mdst	Tan/Gry	3	FC	50	
BLD16-29A1	759876		94	96	2	Calc Mdst	Gry	3	FC	50	
BLD16-29A1	759877		96	98	2	Sltst	Blk	2.5	B2	250	
BLD16-29A1	759878		98	100	2	Sltst	Blk	2.5	B2	250	
BLD16-29A1	759879		100	101.9	1.9	Sltst	Blk	2.5	B2	250	
BLD16-29A1			102	102	0.1	Sltst	Blk	2.5	LW	60	
BLD16-29A1	759880		102	104	2	Calc Mdst	Gry/Brn	2	B1	260	
BLD16-29A1	759881		104	106	2	Sltst	Blk	3	B1	260	
BLD16-29A1	759882		106	108	2	Mdst	Brn	2.5	B1	260	
BLD16-29A1	759883		108	110	2	Sltst/Mdst	Gry/Brn	2.5	B1	260	
BLD16-29A1	759884		110	112	2	Calc Mdst	Drk Gry	3	CAP	70	
BLD16-29A1	759885		112	114	2	Calc Mdst	Drk Gry	3	CAP	70	
BLD16-29A1	759886		114	116	2	Calc Mdst	Drk Gry	3	CAP	70	
BLD16-29A1	759887		116	118	2	Calc Mdst	Drk Gry	3	CAP	70	
BLD16-29A1	759888		118	120	2	Sltst	Gry	3	A-Bed	280	
BLD16-29A1	759889		120	122	2	Sltst	Gry	3	A-Bed	280	
BLD16-29A1	759890		122	124	2	Sltst	Gry	3	A-Bed	280	
BLD16-29A1	759891		124	126	2	Mdst	Brn	2	FWS	80	
BLD16-29A1	759892		126	128	2	Mdst	Brn	2	FWS	80	
BLD16-29A1	759893		128	130	2	Blocky	Gry/Blk	4	FSM	81	
BLD16-29A1	759894		130	132	2	Calc Mdst	Gry/Brn	4	LMS	90	
BLD16-29A1	759895	759901	132	152	20	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-29V1	Logged By:	SDK	Dates:		Type	RC
North	841375.88	Depth	132	Log Date	7/26/16	Sent to Lab	8/1/16
East	425750.01	Hole Angle	90	Drill start	7/8/16	Received from lab	8/3/16
Elevation	6796.995	Hole Bearing		Drill End	7/8/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-29V1	721477		0	5	5	Mdst	Tan	3	Alluv	10	
BLD16-29V1	721478	721500	5	58	53	Mdst/Sh	Brn/Gry	2.5	CWS	40	
BLD16-29V1	759801	759805	58	68	10	Mdst/Sh	Brn/Gry	2.5	CWS	40	
BLD16-29V1	759806	759809	68	76	8	Sltst/Sh	Gry/Blk	2.5	CWS	40	
BLD16-29V1	759810		76	78	2	Sltst	Blk	3	C-Bed	240	
BLD16-29V1	759811		78	80	2	Mdst	Brn/Gry	2	C-Bed	240	
BLD16-29V1	759812		80	82	2	Mdst	Brn/Gry	2	FC	50	
BLD16-29V1	759813		82	84	2	Mdst	Brn/Gry	2	FC	50	
BLD16-29V1	759814		84	86	2	Mdst	Drk Brn	2	FC	50	
BLD16-29V1	759815		86	88	2	Sltst/SS	Drk Gry	3	B2	250	
BLD16-29V1	759816		88	90	2	OO SS	Gry	3	B2	250	
BLD16-29V1	759817		90	91.9	1.9	OO SS	Gry	3	B2	250	
BLD16-29V1			91.9	92	0.1	OO SS	Gry	3	LW	60	
BLD16-29V1	759818		92	94	2	Sltst/Mdst	Brn/Gry	2.5	B1	260	
BLD16-29V1	759819		94	96	2	Sltst	Gry/Blk	3	B1	260	
BLD16-29V1	759820		96	98	2	Sltst	Gry/Blk	3	B1	260	
BLD16-29V1	759821		98	99.9	1.9	Sltst	Gry/Blk	3	B1	260	
BLD16-29V1			99.9	100	0.1	Sltst	Gry/Blk	3	CAP	70	
BLD16-29V1	759822		100	102	2	Sltst/Mdst	Gry	2.5	A-Bed	280	
BLD16-29V1	759823		102	104	2	Sltst/Mdst	Gry	2.5	A-Bed	280	
BLD16-29V1	759824		104	106	2	Sltst	Gry/Blk	2.5	A-Bed	280	
BLD16-29V1	759825		106	108	2	Sltst	Gry/Blk	2.5	A-Bed	280	
BLD16-29V1	759826		108	110	2	Sltst/Mdst	Brn/Gry	2	A-Bed	280	
BLD16-29V1	759827		110	112	2	Mdst	Brn	3	FWS	80	
BLD16-29V1	759828		112	114	2	Mdst	Brn	3	FWS	80	
BLD16-29V1	759829		114	116	2	Blocky	Gry/Blk	4	FSM	81	
BLD16-29V1	759830	759834	116	132	16	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-30A1	**Logged By:**	NK	**Dates:**		**Type**	RC
North	425672.27	**Depth**	102	**Log Date**	7/14/16	**Sent to Lab**	
East	840678.40	**Hole Angle**	50	**Drill start**	6/21/16	**Received from lab**	
Elevation	7030.281	**Hole Bearing**	255	**Drill End**	6/21/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-30A1	438111	438120	0	52	52	Dolomite	Light gry-gry	5	Dolo	92	Wells
BLD16-30A1	438121		52	57	5	Dolomite	Light gry-gry	5	Dolo	92	2ft void
BLD16-30A1	438122		57	62	5	Dolomite	Light gry-gry	5	Dolo	92	1ft void
BLD16-30A1	438123		62	67	5	Dolomite&chrt	Light gry-gry	5	Dolo	92	
BLD16-30A1	438124		67	72	5	Sandy Dolo	Gry-rusty orng	3.5	LMS	90	
BLD16-30A1	438125	438127	72	87	17	Silty LS	gry-off wht	3.5	LMS	90	
BLD16-30A1	438128	438130	87	102	15	SS/chrt	rusty org-drk gry	3.5	LMS	90	

Drill Ho

Hole ID	BLD16-31A1	**Logged By:**	NK	**Dates:**		**Type**	RC
North	425920.41	**Depth**	152	**Log Date**	7/14/16	**Sent to Lab**	
East	840514.39	**Hole Angle**	50	**Drill start**	6/20/16	**Received from lab**	
Elevation	7054.335	**Hole Bearing**	255	**Drill End**	6/25/16	**Lease**	Ballard

DH ID	Sample #	Sample # From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-31A1	433041		0	5	5	Colluvium	brwn	4	Colluv	2	
BLD16-31A1	433042		5	10	5	dolo and chert	off wht- gry	5	Dolo	92	
BLD16-31A1	433043	433048	15	42	27	dolo	gry-drk gry	4	Dolo	92	
BLD16-31A1	433049		42	47	5	dolo and chrt	gry- drk gry	5	Dolo	92	
BLD16-31A1	433050	433054	47	72	25	dolo	gry	4	Dolo	92	
BLD16-31A1	433055	433056	72	82	10	dolo and SS	gry- rust	3.5	Dolo	92	
BLD16-31A1	433057	433058	82	92	10	dolo	gry	4	Dolo	92	
BLD16-31A1	433059		92	97	5	Chrt and SS	drk gry-rust	4	Dolo	92	
BLD16-31A1	433060	433066	97	132	35	LS	off wht-lt gry	3.5	LMS	90	
BLD16-31A1	433067	433070	132	152	20	LS and SS	off wht-rust	3.5	LMS	90	

Drill Hole Log

Hole ID	BLD16-31V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	425919.74	**Depth**	152	**Log Date**	7/14/16	**Sent to Lab**	
East	840521.95	**Hole Angle**	90	**Drill start**	6/14/16	**Received from lab**	
Elevation	7053.403	**Hole Bearing**		**Drill End**	6/14/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-31V1	782270	782271	0	10	10	Mdst	Drk Brn	2	Colluv	2	
BLD16-31V1	782272		10	15	5	Mdst	Lt Brn	2	Colluv	2	
BLD16-31V1	782273		15	17	2	Mdst/LMS	Brn/Gry	3	Colluv	2	
BLD16-31V1			17	22	5				LMS	90	*No Sample
BLD16-31V1	782274	782292	22	117	95	Blocky	Lt Gry	4	LMS	90	
BLD16-31V1	782293	782299	117	152	35	Calc SS	Yel	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-32A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	426143.17	**Depth**	102	**Log Date**	6/24/16	**Sent to Lab**	
East	840301.94	**Hole Angle**	50	**Drill start**	6/20/16	**Received from lab**	
Elevation	7069.992	**Hole Bearing**	255	**Drill End**	6/21/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-32A1	433091	433098	0	42	42	Blky	Gry	5	LMS	90	
BLD16-32A1	433099		42	47	5	Calc SS	Yel Gry	4.5	LMS	90	
BLD16-32A1	433100	433101	47	57	10	Blky	Gry	5	LMS	90	
BLD16-32A1	433102	433110	57	102	45	Calc SS	Yel Gry	4.5	LMS	90	

Drill Hole Log

Hole ID	BLD16-32V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	426146.05	**Depth**	102	**Log Date**	6/24/16	**Sent to Lab**	
East	840307.97	**Hole Angle**	90	**Drill start**	6/21/16	**Received from lab**	
Elevation	7069.692	**Hole Bearing**		**Drill End**	6/21/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-32V1	438111	438113	0	42	42	Blky	Gry	5	LMS	90	
BLD16-32V1	438114	438121	42	57	15	Blky	Gry	5	LMS	90	Void @ 52-62'
BLD16-32V1	438122	438127	57	57	0	Blky	Drk Gry	5	LMS	90	
BLD16-32V1	438128	438130	57	102	45	LMS/Calc SS	Yel Gry	4.5	LMS	90	

Drill Hole Log

Hole ID	BLD16-33A1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	427216.858	**Depth**	202	**Log Date**	7/6/16	**Sent to Lab**	
East	841193.726	**Hole Angle**	50	**Drill start**	6/21/16	**Received from lab**	
Elevation	6620.369	**Hole Bearing**	255	**Drill End**	6/21/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-33A1	779027	779028	0	10	10	Mdst	Tan	2	Colluv	2	
BLD16-33A1	779029		10	15	5	Mdst	Drk Brn	2	FWS	80	
BLD16-33A1	779030	779031	15	27	12	Mdst	Blk	2	FSM	81	
BLD16-33A1	779032	779040	27	72	45	Blocky	Lt Gry	4	LMS	90	
BLD16-33A1	779041	779046	72	102	30	LMS/SS	Gry/Yel	4	LMS	90	
BLD16-33A1	779047	779066	102	202	100	Calc SS	Yel	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-33V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	841198.309	**Depth**	170	**Log Date**	7/14/16	**Sent to Lab**	
East	427219.18	**Hole Angle**	90	**Drill start**	6/20/16	**Received from lab**	
Elevation	6620.217	**Hole Bearing**		**Drill End**	6/20/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-33V1	5029	5030	0	10	10	Mdst	Tan	2	Colluv	2	
BLD16-33V1	5031		10	15	5	Sltst/SS	Gry	3	Colluv	2	
BLD16-33V1	5032		15	22	7	Sltst/SS	Gry	3	Colluv	2	
BLD16-33V1	5033		22	24	2	Mdst	Brn	2	FWS	80	
BLD16-33V1	5034		24	26	2	Mdst	Brn	2	FWS	80	
BLD16-33V1	5035		26	28	2	Sltst/Mdst	Brn/Gry	2.5	FSM	81	
BLD16-33V1	5036	5058	28	76	48	Blocky	Lt Gry	4	LMS	90	
BLD16-33V1	5059	5077	76	112	36	Calc SS/LMS	Yel/Gry	4	LMS	90	
BLD16-33V1	5078	9025	112	170	58	Calc SS	Yel	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-34V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	421783.69	**Depth**	152	**Log Date**	7/6/16	**Sent to Lab**	8/15/16
East	839912.73	**Hole Angle**	90	**Drill start**	6/26/16	**Received from lab**	8/29/16
Elevation	6454.842	**Hole Bearing**		**Drill End**	6/26/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-34V1	721001	721002	0	10	10	Chty Tpsoil	Lt Gry/Tan	2.5	Alluv	10	
BLD16-34V1	721003	721008	10	42	32	Blocky	Lt Gry	3	CHT	20	
BLD16-34V1	721009		42	47	5	Blocky	Lt Gry	4	CHT	20	Alt.
BLD16-34V1	721010		47	52	5	Mdst/Sltst	Brn/Gry	2.5	UW	30	
BLD16-34V1	721011		52	56	4	Mdst/Sltst	Brn/Gry	2.5	UW	30	
BLD16-34V1	721012		56	58	2	Mdst/Sltst	Brn/Gry	2.5	UW	30	
BLD16-34V1	721013		58	60	2	Mdst/Sltst	Brn/Gry	2.5	UW	30	
BLD16-34V1	721014		60	62	2	Sltst	Blk	2.5	UW	30	
BLD16-34V1	721015		62	64	2	Sltst	Blk	2.5	Fault	99	
BLD16-34V1	721016		64	66	2	Sltst	Blk	2.5	Fault	99	
BLD16-34V1	721017	721019	66	72	6	Mdst/Sh	Drk Brn/Blk	2	Fault	99	
BLD16-34V1	721020	721027	72	88	16	Mdst/Sh	Lt Brn/Gry	3	Fault	99	
BLD16-34V1	721028		88	90	2	Sltst	Blk	3	Fault	99	
BLD16-34V1	721029		90	92	2	Sltst	Blk	3	Fault	99	
BLD16-34V1	721030		92	94	2	Mdst/Sltst	Brn/Blk	2	Fault	99	
BLD16-34V1	721031		94	96	2	Mdst/Sltst	Brn/Blk	2	Fault	99	
BLD16-34V1	721032		96	98	2	Mdst/Sltst	Brn/Blk	2	Fault	99	
BLD16-34V1	721033		98	100	2	Mdst/Sltst	Brn/Blk	2	Fault	99	
BLD16-34V1	721034		100	102	2	Mdst/Sltst	Blk	3	Fault	99	
BLD16-34V1	721035		102	104	2	Mdst/Sltst	Blk	3	Fault	99	
BLD16-34V1	721036		104	106	2	Mdst/Sltst	Blk	3	Fault	99	
BLD16-34V1	721037		106	108	2	Mdst/Sltst	Blk	3	Fault	99	
BLD16-34V1	721038		108	110	2	Mdst/Sltst	Blk	3	Fault	99	
BLD16-34V1	721039		110	112	2	Mdst/Sltst	Blk	3	Fault	99	
BLD16-34V1	721040		112	114	2	Calc Mdst	Gry	4	Fault	99	
BLD16-34V1	721041		114	116	2	Calc Mdst	Gry	4	Fault	99	
BLD16-34V1	721042		116	118	2	Mdst/Sltst	Drk Brn/Blk	3	Fault	99	
BLD16-34V1	721043		118	120	2	Mdst/Sltst	Drk Brn/Blk	3	Fault	99	
BLD16-34V1	721044		120	122	2	Mdst/Sltst	Brn/Gry	2.5	Fault	99	
BLD16-34V1	721045	721056	122	152	30	LMS/Calc SS	Yel/Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-35V1	Logged By:	SDK	Dates:		Type	RC
North	423486.78	Depth	112	Log Date	7/6/16	Sent to Lab	8/8/16
East	842369.43	Hole Angle	90	Drill start	6/25/16	Received from lab	8/15/16
Elevation	6654.763	Hole Bearing		Drill End	6/25/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-35V1	713914		14	16	2	Mdst	Drk Gry/Blk	2.5	Colluv	2	
BLD16-35V1	713915		16	18	2	Mdst	Drk Gry/Blk	2.5	Colluv	2	
BLD16-35V1	713916		18	20	2	Mdst/CHT	Lt Brn/Gry	3.5	Colluv	2	
BLD16-35V1	713917		20	22	2	Mdst/CHT	Lt Brn/Gry	3.5	Colluv	2	
BLD16-35V1	713918		22	24	2	Mdst	Brn/Blk	2	Colluv	2	
BLD16-35V1	713919		24	26	2	Mdst	Brn/Blk	2	Colluv	2	
BLD16-35V1	713920		26	28	2	Mdst	Drk Brn	2	Colluv	2	
BLD16-35V1	713921		28	30	2	Mdst	Drk Brn	2	Colluv	2	
BLD16-35V1	713922		30	32	2	Mdst/Sh	Brn/Gry	2.5	Colluv	2	
BLD16-35V1	713923		32	34	2	Mdst	Drk Brn	2	Colluv	2	
BLD16-35V1	713924		34	36	2	Mdst	Drk Brn	2	Colluv	2	
BLD16-35V1	713925		36	38	2	Mdst	Drk Brn	2	Colluv	2	
BLD16-35V1	713926		38	40	2	Mdst/Sh	Brn/Gry	2.5	Colluv	2	
BLD16-35V1	713927		40	42	2	Mdst/Sh	Brn/Gry	2.5	Colluv	2	
BLD16-35V1	713928		42	44	2	Mdst/Sh	Brn/Gry	2.5	Colluv	2	
BLD16-35V1	713929		44	46	2	Mdst	Brn	2	Colluv	2	
BLD16-35V1	713930		46	48	2	Mdst	Brn	2	Colluv	2	
BLD16-35V1	713931		48	50	2	Mdst/Sltst	Brn	3	CAP	70	
BLD16-35V1	713932		50	52	2	Mdst/Sltst	Brn	3	A-Bed	280	
BLD16-35V1	713933		52	54	2	OO Sltst	Drk Gry	3	A-Bed	280	
BLD16-35V1	713934		54	56	2	OO Sltst	Drk Gry	3	A-Bed	280	
BLD16-35V1	713935		56	58	2	OO Sltst	Drk Gry	3	A-Bed	280	
BLD16-35V1	713936		58	60	2	OO Sltst	Drk Gry	3	A-Bed	280	
BLD16-35V1	713937		60	62	2	Mdst	Drk Brn	2	A-Bed	280	
BLD16-35V1	713938		62	64	2	Mdst	Drk Brn	2	FWS	80	
BLD16-35V1	713939	713940	64	72	8	Blocky	Lt Gry	5	FSM	81	
BLD16-35V1	713941	713943	72	78	6	Mdst	Brn/Gry	3.5	LMS	90	
BLD16-35V1	713944	713957	78	112	34	Blocky	Lt Gry	5	LMS	90	

Drill Hole Log

Hole ID	BLD16-36A1	**Logged By:**	DLC/ SDK	**Dates:**		**Type**	RC
North	423396.164	**Depth**	152	**Log Date**	8/9/16	**Sent to Lab**	8/15/16
East	842487.979	**Hole Angle**	60	**Drill start**	6/25/16	**Received from lab**	8/29/16
Elevation	6673.038	**Hole Bearing**	255	**Drill End**	6/25/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-36A1	438066	438067	0	10	10	Mdst	Tan	2	Colluv	2	
BLD16-36A1	438068		10	15	5	Dump	Gry	2.5	Colluv	2	
BLD16-36A1	438069		15	22	7	Dump	Gry	2.5	Colluv	2	
BLD16-36A1	438070		22	27	5	Dump	Gry	2.5	Colluv	2	
BLD16-36A1	438071		27	32	5	Dump	Gry	2.5	Colluv	2	
BLD16-36A1	438072	438078	32	67	35	Blocky	Gry	4	CHT	40	
BLD16-36A1	438079		67	72	5	Alt. CHT	Gry/Tan	4	CHT	40	Pitted
BLD16-36A1	438080		72	77	5	Dolo	Lt Blue	4	Void	95	2'Void
BLD16-36A1	438081		77	82	5	Mdst	Brn	2	CWS	40	
BLD16-36A1	438082		82	84	2	Mdst	Brn	2	CWS	40	
BLD16-36A1	438083		84	86	2	Sltst/Mdst	Gry	2.5	CWS	40	
BLD16-36A1	438084		86	88	2	Mdst/Sh	Gry	2.5	CWS	40	
BLD16-36A1	438085		88	90	2	Calc Mdst	Tan	4	CWS	40	
BLD16-36A1	438086		90	92	2	Calc Mdst	Tan	4	CWS	40	Sample #'s not in chip tray. Assuming a 10' shift.
BLD16-36A1	438087		92	94	2	Calc Mdst	Tan	4	C-Bed	240	
BLD16-36A1	438088		94	96	2	Sltst	Blk	3	C-Bed	240	
BLD16-36A1	438089		96	98	2	Sltst	Blk	3	C-Bed	240	
BLD16-36A1	438090		98	100	2	Sltst	Blk	3	FC	50	
BLD16-36A1	438091		100	102	2	Sltst	Blk	3	FC	50	
BLD16-36A1	438092		102	104	2	Sltst	Blk	3	B2	250	
BLD16-36A1	438093		104	106	2	Sltst	Blk	3	LW	60	
BLD16-36A1	438094		106	108	2	Mdst/Sltst	Brn/Blk	2.5	LW	60	
BLD16-36A1	438095		108	110	2	Mdst/Sltst	Brn/Blk	2.5	LW	60	
BLD16-36A1			110	110.1	0.1	Mdst/Sltst	Brn/Blk	2.5	B1	260	
BLD16-36A1	438096		110.1	112	1.9	Mdst/Sltst	Brn/Blk	2.5	CAP	70	
BLD16-36A1	438097		112	114	2	Mdst/Sltst	Brn/Blk	2.5	A-Bed	280	
BLD16-36A1	438098		114	116	2	Mdst/Sltst	Brn/Blk	2.5	A-Bed	280	
BLD16-36A1	438099		116	118	2	Mdst/Sltst	Brn/Blk	2.5	A-Bed	280	
BLD16-36A1	438100		118	120	2	Mdst/Sltst	Brn/Blk	2.5	A-Bed	280	
BLD16-36A1	713901		120	122	2	Mdst/Sltst	Brn/Blk	2.5	FWS	80	
BLD16-36A1	713902		122	124	2	Mdst/Sltst	Brn/Blk	2.5	FWS	80	
BLD16-36A1	713903		124	126	2	Mdst/Sltst	Brn/Blk	2.5	FSM	81	
BLD16-36A1	713904		126	128	2	Blocky	Lt Gry	4	Void	95	1' void

Drill Hole Log

Hole ID	BLD16-36A1	**Logged By:**	DLC/ SDK	**Dates:**		**Type**	RC
North	423396.164	**Depth**	152	**Log Date**	8/9/16	**Sent to Lab**	8/15/16
East	842487.979	**Hole Angle**	60	**Drill start**	6/25/16	**Received from lab**	8/29/16
Elevation	6673.038	**Hole Bearing**	255	**Drill End**	6/25/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-36A1	713905		128	130	2	Blocky	Lt Gry	4	LMS	90	
BLD16-36A1	713906		130	132	2	Blocky	Lt Gry	4	LMS	90	
BLD16-36A1	713907		132	134	2	Blocky	Lt Gry	4	LMS	90	
BLD16-36A1	713908		134	136	2	Blocky	Lt Gry	4	LMS	90	
BLD16-36A1	713909		136	138	2	Blocky	Lt Gry	4	LMS	90	
BLD16-36A1	713910		138	140	2	Blocky	Lt Gry	4	LMS	90	
BLD16-36A1	713911	713913	140	152	12	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-36V1	Logged By:	SDK	Dates:		Type	RC
North	423397.36	Depth	272	Log Date	8/9/16	Sent to Lab	8/15/16
East	842490.88	Hole Angle	90	Drill start	6/24/16	Received from lab	8/30/16
Elevation	6672.864	Hole Bearing		Drill End	6/24/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-36V1	433455	433456	0	10	10	Dump	Lt Brn	2	Colluv	2	
BLD16-36V1	433457	433464	10	30	20	Dump	Gry	3.5	Colluv	2	
BLD16-36V1	433465	433478	30	56	26	Mdst	Tan/Brn	3	Colluv	2	
BLD16-36V1	433479	433483	56	68	12	Sltst/Sh	Gry/Blk	2.5	Colluv	2	
BLD16-36V1	433484	433500	68	102	34	Blocky	Gry	4	CHT	20	
BLD16-36V1	438001	438009	102	147	45	Blocky	Gry	4	CHT	20	4' Void @ 112
BLD16-36V1	438010		147	152	5	Mdst	Gry	2	CWS	40	
BLD16-36V1	438011		152	157	5	Mdst/Sltst	Gry	2.5	CWS	40	
BLD16-36V1	438012		157	162	5	Sltst	Gry	3	CWS	40	E-Bed
BLD16-36V1	438013		162	167	5	Mdst/Sltst	Gry	2.5	CWS	40	
BLD16-36V1	438014		167	168	1	Mdst	Gry	3	CWS	40	
BLD16-36V1	438015	438019	168	178	10	Calc Mdst	Gry	3	CWS	40	
BLD16-36V1	438020		178	180	2	Sltst	Blk	3	CWS	40	
BLD16-36V1	438021	438025	180	190	10	Calc Mdst	Gry	3	CWS	40	
BLD16-36V1	438026	438030	190	200	10	Sltst/Sh	Blk	3	CWS	40	
BLD16-36V1	438031		200	202	2	Mdst	Drk Gry	2	CWS	40	
BLD16-36V1	438032		202	204	2	Calc Mdst	Drk Gry	3	CWS	40	
BLD16-36V1	438033		204	206	2	Calc Mdst	Drk Gry	3	CWS	40	
BLD16-36V1	438034		206	208	2	Calc Mdst	Drk Gry	3	CWS	40	
BLD16-36V1	438035		208	210	2	Calc Mdst	Drk Gry	3	C-Bed	240	
BLD16-36V1	438036		210	211.9	1.9	Calc Mdst	Gry	3	C-Bed	240	
BLD16-36V1			211.9	212	0.1	Calc Mdst	Gry	3	FC	50	
BLD16-36V1	438037		212	214	2	Calc Mdst	Gry	3	B2	250	
BLD16-36V1	438038		214	215.9	1.9	Calc Mdst	Gry	3	B2	250	
BLD16-36V1			215.9	216	0.1	Calc Mdst	Gry	3	LW	60	
BLD16-36V1	438039		216	218	2	Sltst	Blk	2.5	B1	260	
BLD16-36V1	438040		218	220	2	Sltst	Blk	2.5	B1	260	
BLD16-36V1	438041		220	222	2	Calc Mdst	Gry	3	CAP	70	
BLD16-36V1	438042		222	224	2	Calc Mdst	Gry	3	CAP	70	
BLD16-36V1	438043		224	226	2	Mdst/Sltst	Blk	2.5	CAP	70	

Drill Hole Log

Hole ID	BLD16-36V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	423397.36	**Depth**	272	**Log Date**	8/9/16	**Sent to Lab**	8/15/16
East	842490.88	**Hole Angle**	90	**Drill start**	6/24/16	**Received from lab**	8/30/16
Elevation	6672.864	**Hole Bearing**		**Drill End**	6/24/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-36V1	438044		226	228	2	Sltst	Blk	2.5	CAP	70	
BLD16-36V1	438045		228	230	2	Mdst/Sltst	Blk	2.5	CAP	70	
BLD16-36V1	438046		230	232	2	Sltst	Blk	3	CAP	70	
BLD16-36V1	438047		232	234	2	Sltst	Blk	3	A-Bed	280	
BLD16-36V1	438048		234	236	2	Sltst	Blk	3	A-Bed	280	
BLD16-36V1	438049		236	238	2	Mdst	Gry	2	A-Bed	280	
BLD16-36V1	438050		238	240	2	Mdst	Gry	2	A-Bed	280	
BLD16-36V1	438051		240	241.9	1.9	Mdst/Sltst	Brn/Blk	2.5	A-Bed	280	
BLD16-36V1			241.9	242	0.1	Mdst/Sltst	Brn/Blk	2.5	FWS	80	
BLD16-36V1	438052		242	244	2	Blocky	Gry/Blk	4	FSM	81	
BLD16-36V1	438053	438063	244	272	28	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-37V1	Logged By:	SDK	Dates:		Type	RC
North	423291.69	Depth	310	Log Date	8/30/16	Sent to Lab	9/10/16
East	840817.05	Hole Angle	90	Drill start	6/26/16	Received from lab	9/13/16
Elevation	6722.232	Hole Bearing		Drill End	6/27/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-37V1	779310	779331	0	112	112	Blocky	Gry	4	CHT	20	
BLD16-37V1	779332	779333	112	122	10	Dolo	Lt Blue	4	CHT	20	
BLD16-37V1	779334	779336	122	128	6	Mdst	Tan/Gry	3	UW	30	
BLD16-37V1	779337	779339	128	134	6	Sltst	Gry	3	UW	30	
BLD16-37V1	779340	779342	134	140	6	Mdst	Tan/Gry	3	UW	30	
BLD16-37V1	779343		140	142	2	Sltst	Gry	4	D3	130	
BLD16-37V1	779344		142	144	2	Sltst/Mdst	Gry/Brn	3	D3	130	
BLD16-37V1	779345		144	146	2	Sltst/Mdst	Gry/Brn	3	D-Mud	35	
BLD16-37V1	779346		146	148	2	Sltst/Mdst	Gry/Brn	3	D2	140	
BLD16-37V1	779347		148	150	2	Sltst/Mdst	Gry/Brn	3	D2	140	
BLD16-37V1	779348		150	152	2	Mdst	Brn	2.5	D2	140	
BLD16-37V1	779349		152	154	2	Mdst	Brn	2.5	D2	140	
BLD16-37V1	779350		154	156	2	Mdst	Brn	2.5	D2	140	
BLD16-37V1	779351		156	158	2	Mdst	Brn	2.5	D2	140	
BLD16-37V1	779352	779370	158	196	38	Mdst/Sltst	Drk Gry	3	CWS	40	
BLD16-37V1	779371	779373	196	202	6	Mdst/Sh	Gry/Red	3	CWS	40	Fe02 Stains
BLD16-37V1	779374	779378	202	212	10	Calc Mdst	Tan/Gry	4	CWS	40	
BLD16-37V1	779379	779386	212	228	16	Mdst/Sh	Gry/Red	3	CWS	40	Fe02 Stains
BLD16-37V1	779387	779390	228	236	8	Calc Mdst	Gry	4	CWS	40	
BLD16-37V1	779391	779395	236	246	10	Sltst/Sh	Drk Gry	3	CWS	40	
BLD16-37V1	779396		246	248	2	Calc Mdst	Gry	4	CWS	40	
BLD16-37V1	779397		248	250	2	Mdst	Blk	2	CWS	40	
BLD16-37V1	779398		250	252	2	Mdst/Sltst	Gry/Blk	3	C-Bed	240	
BLD16-37V1	779399		252	254	2	Mdst/Sltst	Gry/Blk	3	C-Bed	240	
BLD16-37V1	779400		254	256	2	Sltst	Gry	2.5	C-Bed	240	
BLD16-37V1	779401		256	258	2	Sltst	Gry	2.5	C-Bed	240	
BLD16-37V1	779402		258	260	2	Sltst	Gry	3	FC	50	
BLD16-37V1	779403		260	262	2	Mdst/Sltst	Gry	3	FC	50	
BLD16-37V1	779404		262	264	2	Calc Mdst	Gry/Brn	3	FC	50	
BLD16-37V1	779405		264	266	2	Sltst/SS	Blk	2	FC	50	

Drill Hole Log

Hole ID	BLD16-37V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	423291.69	**Depth**	310	**Log Date**	8/30/16	**Sent to Lab**	9/10/16
East	840817.05	**Hole Angle**	90	**Drill start**	6/26/16	**Received from lab**	9/13/16
Elevation	6722.232	**Hole Bearing**		**Drill End**	6/27/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-37V1	779406		266	268	2	Sltst/SS	Blk	2	B2	260	
BLD16-37V1	779407		268	270	2	Sltst/SS	Blk	2	B2	260	
BLD16-37V1	779408		270	272	2	Mdst	Brn	2	B2	260	
BLD16-37V1	779409		272	274	2	Mdst	Brn/Gry	3	LW	60	
BLD16-37V1	779410		274	276	2	Mdst	Brn/Gry	3	LW	60	
BLD16-37V1	779411		276	278	2	Sltst	Gry	2	B1	270	
BLD16-37V1	779412		278	280	2	Sltst	Gry	3	B1	270	
BLD16-37V1	779413		280	282	2	Sltst	Drk Gry	3	B1	270	
BLD16-37V1	779414		282	284	2	Mdst/Sltst	Gry/Brn	2	CAP	70	
BLD16-37V1	779415		284	286	2	Calc Sltst	Gry	3	CAP	70	
BLD16-37V1	779416		286	288	2	Mdst/Sltst	Brn/Gry	3	CAP	70	
BLD16-37V1	779417		288	290	2	Mdst/Sltst	Brn/Gry	3	CAP	70	
BLD16-37V1	779418		290	292	2	Mdst/Sltst	Brn/Gry	3	A-Bed	280	
BLD16-37V1	779419		292	294	2	Mdst/Sltst	Brn/Blk	3	FWS	80	
BLD16-37V1	779420		294	296	2	Mdst	Lt Brn	2	FSM	81	
BLD16-37V1	779421	779424	296	310	14	Blocky	Lt Gry	4	LMS	90	

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Drill Hole Log

Hole ID	BLD16-38V1	Logged By:	SDK	Dates:		Type	RC
North	424875.802	Depth	282	Log Date	8/30/16	Sent to Lab	9/19/16
East	837736.444	Hole Angle	90	Drill start	6/27/16	Received from lab	9/23/16
Elevation	6500.745	Hole Bearing		Drill End	6/28/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-38V1	721057	721060	0	18	18	Chrty Mdst	Tan	3	Alluv	10	
BLD16-38V1	721061	721077	18	62	44	Blocky	Gry	4	CHT	20	
BLD16-38V1	721078	721079	62	68	6	Alt. Cht	Cream	4	CHT	20	Pitted
BLD16-38V1	721080		68	70	2	Dolo	Lt Blue	4	CHT	20	
BLD16-38V1	721081	721086	70	84	14	Mdst	Blk	3	UW	30	
BLD16-38V1	721087		84	86	2	Sltst	Blk	3	UW	30	
BLD16-38V1	721088		86	88	2	Sltst	Blk	3	UW	30	
BLD16-38V1	721089		88	90	2	Sltst	Blk	3	D3	130	
BLD16-38V1	721090		90	92	2	Sltst	Blk	3	D3	130	
BLD16-38V1	721091		92	93.9	1.9	Sltst	Blk	3	D3	130	
BLD16-38V1			93.9	94	0.1	Sltst	Blk	3	D-Mud	35	
BLD16-38V1	721092		94	96	2	Sltst	Blk	3	D2	140	
BLD16-38V1	721093		96	98	2	Sltst	Blk	2.5	D2	140	
BLD16-38V1	721094		98	100	2	Sltst	Blk	3	D2	140	
BLD16-38V1	721095		100	102	2	Sltst	Blk	3	D2	140	
BLD16-38V1	721096		102	104	2	Mdst	Blk	3	D2	140	
BLD16-38V1	721097		104	106	2	Mdst/Sltst	Blk	3	CWS	40	
BLD16-38V1	721098		106	108	2	Mdst/Sltst	Blk	3	CWS	40	
BLD16-38V1	721099		108	110	2	Mdst/Sltst	Blk	3	CWS	40	
BLD16-38V1	721100		110	112	2	Mdst	Blk	3	CWS	40	
BLD16-38V1	721101	721127	112	166	54	Mdst/Sh	Blk	3	CWS	40	
BLD16-38V1	721128	721138	166	188	22	Mdst	Brn	2	CWS	40	
BLD16-38V1	721139	721143	188	198	10	Calc Mdst	Tan/Gry	4	CWS	40	
BLD16-38V1	721144	721149	198	212	14	Sltst/Mdst	Blk	3	CWS	40	
BLD16-38V1	721150		212	214	2	Mdst/Sltst	Blk	3	C-Bed	240	
BLD16-38V1	721151		214	216	2	Mdst/Sltst	Blk	3	FC	50	
BLD16-38V1	721152		216	218	2	Sltst	Gry/Blk	2	FC	50	
BLD16-38V1	721153		218	220	2	Sltst	Gry/Blk	2.5	B2	250	
BLD16-38V1	721154		220	222	2	Sltst	Gry/Blk	2.5	B2	250	
BLD16-38V1	721155		222	224	2	Mdst	Brn	2	B2	250	
BLD16-38V1	721156		224	226	2	Calc Mdst	Gry	4	LW	60	

Drill Hole Log

Hole ID	BLD16-38V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	424875.802	**Depth**	282	**Log Date**	8/30/16	**Sent to Lab**	9/19/16
East	837736.444	**Hole Angle**	90	**Drill start**	6/27/16	**Received from lab**	9/23/16
Elevation	6500.745	**Hole Bearing**		**Drill End**	6/28/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-38V1	721157		226	228	2	Mdst	Brn	3	B1	260	
BLD16-38V1	721158		228	230	2	Calc Mdst	Gry	4	CAP	70	
BLD16-38V1	721159		230	232	2	Sltst	Brn/Gry	3	A-Bed	280	
BLD16-38V1	721160		232	234	2	Sltst	Brn/Gry	3	A-Bed	280	
BLD16-38V1	721161		234	236	2	Mdst/Sltst	Brn/Blk	2.5	A-Bed	280	
BLD16-38V1	721162		236	238	2	OO SS	Brn/Gry	3	A-Bed	280	
BLD16-38V1	721163		238	240	2	Mdst/Sltst	Brn/Blk	3	FWS	80	
BLD16-38V1	721164		240	242	2	Mdst/Sltst	Brn/Blk	3	FWS	80	
BLD16-38V1	721165		242	244	2	Mdst/Sltst	Brn/Blk	3	FSM	81	
BLD16-38V1	721166	721175	244	282	38	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-39A1	Logged By:	SDK	Dates:		Type	RC
North	424740.614	Depth	332	Log Date	8/30/16	Sent to Lab	9/13/16
East	837745.297	Hole Angle	75	Drill start	6/27/16	Received from lab	9/15/16
Elevation	6509.689	Hole Bearing	83	Drill End	6/28/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-39A1	721176	721180	0	27	27	Chrty Mdst	Brn/Gry	3	Alluv	10	
BLD16-39A1	721181	721193	27	92	65	Blocky	Gry	4	CHT	20	
BLD16-39A1	721194		92	96	4	Dolo	Lt Blue	4	CHT	20	Pitted/Alt.
BLD16-39A1	721195	721199	96	106	10	Mdst	Blk	3	UW	30	
BLD16-39A1	721200	721203	106	114	8	Sltst	Blk	3	UW	30	
BLD16-39A1	721204		114	116	2	Sltst	Blk	3	UW	30	
BLD16-39A1	721205		116	118	2	Sltst/Mdst	Blk	2.5	D3	130	
BLD16-39A1	721206		118	120	2	Sltst	Blk	3	D3	130	
BLD16-39A1	721207		120	121.9	1.9	Sltst	Blk	3	D3	130	
BLD16-39A1			121.9	122	0.1	Sltst	Blk	3	D-Mud	35	
BLD16-39A1	721208		122	124	2	Sltst	Blk	3	D2	140	
BLD16-39A1	721209		124	126	2	Sltst/Mdst	Blk	2.5	D2	140	
BLD16-39A1	721210		126	128	2	Sltst/Mdst	Blk	2.5	D2	140	
BLD16-39A1	721211		128	130	2	Sltst	Blk	3	D2	140	
BLD16-39A1	721212		130	132	2	Sltst/Mdst	Blk	2.5	D2	140	
BLD16-39A1	721213		132	134	2	Mdst	Blk	3	CWS	40	
BLD16-39A1	721214	721245	134	198	64	Mdst/Sh	Gry/Blk	3	CWS	40	
BLD16-39A1	721246	721253	198	214	16	Mdst/Sh	Brn/Gry	2.5	CWS	40	
BLD16-39A1	721254	721258	214	224	10	Sltst/Mdst	Gry	3	CWS	40	
BLD16-39A1	721259	721264	224	236	12	Mdst	Brn	3	CWS	40	
BLD16-39A1	721265	721274	236	256	20	Sltst	Blk	3	CWS	40	
BLD16-39A1	721275		256	258	2	Sltst	Blk	3	C-Bed	240	
BLD16-39A1	721276		258	260	2	Sltst	Blk	3	FC	50	
BLD16-39A1	721277		260	262	2	Calc Mdst	Brn	3	FC	50	
BLD16-39A1	721278		262	264	2	Calc Mdst	Brn	3	FC	50	
BLD16-39A1	721279		264	266	2	Sltst/Mdst	Blk/Brn	3	FC	50	
BLD16-39A1	721280		266	268	2	Sltst/Mdst	Drk Gry	3	FC	50	
BLD16-39A1	721281		268	270	2	Sltst	Drk Gry	3	B2	250	
BLD16-39A1	721282		270	271.9	1.9	Mdst/Sltst	Gry	3	B2	250	
BLD16-39A1			271.9	272	0.1	Mdst/Sltst	Gry	3	LW	60	

Drill Hole Log

Hole ID	BLD16-39A1	Logged By:	SDK	Dates:		Type	RC
North	424740.614	Depth	332	Log Date	8/30/16	Sent to Lab	9/13/16
East	837745.297	Hole Angle	75	Drill start	6/27/16	Received from lab	9/15/16
Elevation	6509.689	Hole Bearing	83	Drill End	6/28/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-39A1	721283		272	274	2	Calc Mdst	Gry/Brn	4	B1	260	
BLD16-39A1	721284		274	276	2	Sltst/Mdst	Brn/Gry	3	B1	260	
BLD16-39A1	721285		276	278	2	Sltst/Mdst	Blk	3	B1	260	
BLD16-39A1	721286		278	280	2	Sltst	Brn/Gry	2.5	B1	260	
BLD16-39A1	721287		280	282	2	Sltst/Mdst	Blk	2.5	B1	260	
BLD16-39A1	721288		282	284	2	Sltst SS	Brn/Gry	3	CAP	70	
BLD16-39A1	721289		284	286	2	Sltst SS	Blk	3	CAP	70	
BLD16-39A1	721290		286	288	2	Sltst	Blk	3	CAP	70	
BLD16-39A1	721291		288	290	2	Sltst/Mdst	Drk Gry	3	A-Bed	280	
BLD16-39A1	721292		290	292	2	Sltst/Mdst	Drk Gry	3	A-Bed	280	
BLD16-39A1	721293		292	294	2	Mdst/Sltst	Drk Gry	3	A-Bed	280	
BLD16-39A1	721294		294	296	2	Calc Mdst	Gry	4	FWS	80	
BLD16-39A1	721295	721296	296	302	6	Mdst/LMS	Gry/Brn	4	FSM	81	
BLD16-39A1	721297	721300	302	310	8	Blocky	Lt Gry	4	LMS	90	
BLD16-39A1	713801	713805	310	332	22	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-40V1	Logged By:	SDK	Dates:		Type	RC
North	423416.543	Depth	202	Log Date	7/19/16	Sent to Lab	9/13/16
East	840455.533	Hole Angle	90	Drill start	6/28/16	Received from lab	9/15/16
Elevation	6626.413	Hole Bearing		Drill End	6/28/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-40V1	779425	779427	0	15	15	Blocky	Lt Brn/Gry	4	CHT	20	
BLD16-40V1	779428	779435	15	54	39	CHT	Gry	4	CHT	20	
BLD16-40V1	779436	779439	54	62	8	Mdst	Brn	2.5	UW	30	
BLD16-40V1	779440		62	64	2	Sltst/SS	Brn/Blk	3	UW	30	
BLD16-40V1	779441		64	66	2	Sltst/SS	Brn/Blk	3	UW	30	
BLD16-40V1	779442		66	68	2	Sltst/Mdst	Brn/Gry	2.5	D3	130	
BLD16-40V1	779443		68	69.9	1.9	Sltst	Gry	3	D3	130	
BLD16-40V1			69.9	70	0.1	Sltst	Gry	3	D-Mud	35	
BLD16-40V1	779444		70	72	2	Sltst/Mdst	Brn/Gry	3	D2	140	
BLD16-40V1	779445		72	74	2	Sltst/Mdst	Gry	3	D2	140	
BLD16-40V1	779446		74	76	2	Sltst	Blk	3	D2	140	
BLD16-40V1	779447		76	78	2	Mdst	Drk Brn	2	D2	140	
BLD16-40V1	779448		78	80	2	Mdst	Drk Brn	2	D2	140	
BLD16-40V1	779449		80	82	2	Mdst	Drk Brn	2	D2	140	
BLD16-40V1	779450	779452	82	88	6	Sltst/Mdst	Blk	2.5	CWS	40	
BLD16-40V1	779453	779468	88	120	32	Mdst	Brn	3	CWS	40	E-Bed @ 108'
BLD16-40V1	779469	779471	120	126	6	Mdst/Sh	Brn/Gry	3	CWS	40	
BLD16-40V1	779472		126	128	2	Sltst/Mdst	Brn/Blk	2.5	CWS	40	
BLD16-40V1	779473		128	130	2	Sltst/Mdst	Brn/Blk	2.5	CWS	40	
BLD16-40V1	779474		130	132	2	Sltst/Mdst	Brn/Blk	2.5	CWS	40	
BLD16-40V1	779475		132	134	2	Sltst/Mdst	Brn/Blk	2.5	CWS	40	
BLD16-40V1	779476		134	136	2	Sltst/Mdst	Brn/Blk	2.5	C-Bed	240	
BLD16-40V1	779477		136	138	2	Mdst	Blk	2	FC	50	
BLD16-40V1	779478		138	140	2	Mdst	Blk	2	FC	50	
BLD16-40V1	779479		140	142	2	Sltst/SS	Blk	3	B2	250	
BLD16-40V1	779480		142	144	2	Mdst/Sh	Brn/Blk	2	B2	250	
BLD16-40V1	779481		144	146	2	Sltst/Mdst	Brn/Blk	3	LW	60	
BLD16-40V1	779482		146	148	2	Sltst/Mdst	Blk	2.5	LW	60	
BLD16-40V1	779483		148	150	2	Sltst/Mdst	Blk	2.5	LW	60	

Drill Hole Log

Hole ID	BLD16-40V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	423416.543	**Depth**	202	**Log Date**	7/19/16	**Sent to Lab**	9/13/16
East	840455.533	**Hole Angle**	90	**Drill start**	6/28/16	**Received from lab**	9/15/16
Elevation	6626.413	**Hole Bearing**		**Drill End**	6/28/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-40V1	779484		150	152	2	Sltst/SS	Gry/Brn	3	B1	260	
BLD16-40V1	779485		152	154	2	Calc Mdst	Gry	3	B1	260	Bio-clastic
BLD16-40V1	779486		154	156	2	Calc Sltst/M	Tan/Gry	3.5	B1	260	
BLD16-40V1	779487		156	158	2	Sltst/Mdst	Brn/Gry	3	B1	260	
BLD16-40V1	779488		158	160	2	Sltst	Blk	3	B1	260	
BLD16-40V1	779489		160	162	2	Sltst	Blk	3	B1	260	
BLD16-40V1	779490		162	164	2	Sltst/Mdst	Gry/Brn	3	B1	260	
BLD16-40V1	779491		164	166	2	Sltst	Blk	3	CAP	70	
BLD16-40V1	779492		166	168	2	Sltst/Mdst	Gry/Blk	3.5	CAP	70	
BLD16-40V1	779493		168	170	2	Sltst/Mdst	Gry/Blk	3.5	CAP	70	
BLD16-40V1	779494		170	172	2	Sltst/Mdst	Gry/Blk	3.5	CAP	70	
BLD16-40V1	779495		172	174	2	Course OO	Brn/Gry	4	A-Bed	280	
BLD16-40V1	779496		174	176	2	Sltst/Mdst	Brn/Gry	3.5	A-Bed	280	
BLD16-40V1	779497		176	178	2	Mdst	Brn	3	FWS	80	
BLD16-40V1	779498		178	180	2	Blocky	Brn/Gry	4	FSM	81	
BLD16-40V1	779499	779500	180	184	4	Blocky	Lt Gry	4	LMS	90	
BLD16-40V1	713960	713968	184	202	18	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-41V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	423201.707	**Depth**	282	**Log Date**	8/30/16	**Sent to Lab**	9/6/16
East	841114.611	**Hole Angle**	90	**Drill start**	6/28/16	**Received from lab**	9/8/16
Elevation	6706.218	**Hole Bearing**		**Drill End**	6/29/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-41V1	959501	759503	0	15	15	Chrty Mdst	Gry/Brn	3	Alluv	10	
BLD16-41V1	759504	759519	15	76	61	Blocky	Gry/Blk	4	CHT	20	
BLD16-41V1	759520		76	78	2	Dolo	Lt Blue	4	UW	30	
BLD16-41V1	759521		78	80	2	Sltst/Mdst	Gry/Brn	3	UW	30	
BLD16-41V1	759522		80	81.9	1.9	Sltst	Gry	3	D3	130	
BLD16-41V1			81.9	82	0.1	Sltst	Gry	3	D-Mud	35	
BLD16-41V1	759523		82	84	2	Sltst	Gry	3	D2	140	
BLD16-41V1	759524		84	86	2	Mdst	Brn	2	D2	140	
BLD16-41V1	759525	759535	86	108	22	Mdst	Drk Brn	2	CWS	40	
BLD16-41V1	759536	759576	108	190	82	Mdst/Sltst	Gry/Blk	3	CWS	40	
BLD16-41V1	759577	759579	190	196	6	Calc Mdst	Brn/Gry	4	CWS	40	
BLD16-41V1	759580	759589	196	216	20	Mdst/Sh	Blk	3	CWS	40	
BLD16-41V1	759590		216	218	2	Mdst/Sltst	Blk	3	C-Bed	240	
BLD16-41V1	759591		218	220	2	Mdst/Sltst	Blk	3	FC	50	
BLD16-41V1	759592		220	222	2	Mdst/Sltst	Blk	3	FC	50	
BLD16-41V1	759593		222	224	2	Calc Mdst	Brn	3	FC	50	
BLD16-41V1	759594		224	226	2	Calc Mdst	Brn	3	FC	50	
BLD16-41V1	759595		226	228	2	Calc Mdst	Brn	3	B2	250	
BLD16-41V1	759596		228	230	2	Sltst	Drk Gry	3	LW	60	
BLD16-41V1	759597		230	232	2	Sltst	Drk Gry	3	B1	260	
BLD16-41V1	759598		232	234	2	Sltst	Drk Gry	3	B1	260	
BLD16-41V1	759599		234	236	2	Sltst	Drk Gry	3	B1	260	
BLD16-41V1	759600		236	238	2	Sltst	Drk Gry	3	B1	260	
BLD16-41V1	759601		238	240	2	Mdst/Sltst	Drk Gry	3	CAP	70	
BLD16-41V1	759602		240	242	2	Calc Mdst	Gry	3	CAP	70	
BLD16-41V1	759603		242	244	2	Calc Mdst	Gry	4	A-Bed	280	
BLD16-41V1	759604		244	246	2	OO SS	Drk Gry	3	A-Bed	280	
BLD16-41V1	759605		246	248	2	OO Sltst	Drk Gry	3	A-Bed	280	
BLD16-41V1	759606		248	250	2	OO SS	Drk Gry	3	A-Bed	280	

Drill Hole Log

Hole ID	BLD16-41V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	423201.707	**Depth**	282	**Log Date**	8/30/16	**Sent to Lab**	9/6/16
East	841114.611	**Hole Angle**	90	**Drill start**	6/28/16	**Received from lab**	9/8/16
Elevation	6706.218	**Hole Bearing**		**Drill End**	6/29/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-41V1	759607		250	252	2	Mdst	Brn	2	FWS	80	
BLD16-41V1	759608		252	254	2	Calc Mdst	Lt Brn	3	FWS	80	
BLD16-41V1	759609		254	256	2	Mdst/Sltst	Brn/Gry	3	FSM	81	
BLD16-41V1	759610	759616	256	282	26	Blocky	Lt Gry	4	LMS	90	

Drill Hole

Hole ID	BLD16-42A1	Logged By:	SDK	Dates:		Type	RC
North	421954.52	Depth	242	Log Date	8/16/16	Sent to Lab	9/15/16
East	842988.761	Hole Angle	60	Drill start	7/6/16	Received from lab	9/19/16
Elevation	6665.955	Hole Bearing	254	Drill End	7/6/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-42A1	713837	713839	0	15	15	Mdst	Tan/Org	2	Alluv	10	
BLD16-42A1	713840		15	22	7	Dolo	Lt Blue	4	UW	30	
BLD16-42A1	713841	713847	22	42	20	Mdst	Blk	3	UW	30	
BLD16-42A1	713848		42	44	2	Mdst/Sltst	Blk	3	D3	130	
BLD16-42A1	713849		44	46	2	Mdst/Sltst	Blk	3	D3	130	
BLD16-42A1	713850		46	48	2	Mdst/Sltst	Blk	3	D3	130	
BLD16-42A1	713851		48	50	2	Sltst	Blk	3	D3	130	
BLD16-42A1	713852		50	52	2	Sltst	Blk	3	D3	130	
BLD16-42A1	713853		52	54	2	Sltst	Blk	3	D-Mud	35	
BLD16-42A1	713854		54	56	2	Calc Mdst	Gry	2.5	D2	140	
BLD16-42A1	713855		56	58	2	Calc Mdst	Gry	2.5	CWS	40	
BLD16-42A1	713856		58	60	2	Calc Mdst	Gry	2.5	CWS	40	
BLD16-42A1	713857		60	62	2	Calc Mdst	Gry	2.5	CWS	40	
BLD16-42A1	713858	713889	62	126	64	Mdst/Sh	Gry/Blk	3	CWS	40	Calcy; Qtz @ 102 & 112
BLD16-42A1	713890	713891	126	130	4	Calc Mdst	Gry	4	CWS	40	E-Bed @124-128'
BLD16-42A1	713892	713894	130	136	6	Mdst/Sh	Gry/Blk	3	CWS	40	
BLD16-42A1	713895	713900	136	150	14	Calc Mdst	Tan/Brn	4	CWS	40	
BLD16-42A1	721301	721309	150	168	18	Mdst/Sltst	Gry/Blk	3	CWS	40	
BLD16-42A1	721310		168	170	2	Mdst/Sltst	Blk	3	C-Bed	240	
BLD16-42A1	721311		170	172	2	Mdst/Sltst	Blk	3	FC	50	
BLD16-42A1	721312		172	174	2	Mdst/Sltst	Blk	3	FC	50	
BLD16-42A1	721313		174	176	2	Mdst/Sltst	Blk	3	FC	50	
BLD16-42A1	721314		176	178	2	Calc Mdst	Gry	4	FC	50	
BLD16-42A1	721315		178	180	2	Calc Mdst	Gry	4	FC	50	
BLD16-42A1	721316		180	182	2	Mdst/Sltst	Gry	3	FC	50	
BLD16-42A1	721317		182	184	2	Sltst	Gry	3	B2	250	
BLD16-42A1	721318		184	186	2	Sltst	Gry	3	B2	250	
BLD16-42A1	721319		186	187.9	1.9	Mdst/Sltst	Gry	4	B2	250	
BLD16-42A1			187.9	188	0.1				LW	60	
BLD16-42A1	721320		188	190	2	Sltst	Gry	3	B1	260	
BLD16-42A1	721321		190	192	2	Sltst	Gry	3	B1	260	

Drill Hole

Hole ID	BLD16-42A1	Logged By:	SDK	Dates:		Type	RC
North	421954.52	Depth	242	Log Date	8/16/16	Sent to Lab	9/15/16
East	842988.761	Hole Angle	60	Drill start	7/6/16	Received from lab	9/19/16
Elevation	6665.955	Hole Bearing	254	Drill End	7/6/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-42A1	721322		192	194	2	Sltst	Gry	3	B1	260	
BLD16-42A1	721323		194	196	2	Sltst	Gry	3	B1	260	
BLD16-42A1	721324		196	197.9	1.9	Mdst	Gry/Blk	2.5	B1	260	
BLD16-42A1			197.9	198	0.1	Mdst	Gry/Blk	2.5	CAP	70	
BLD16-42A1	721325		198	200	2	Mdst	Gry/Blk	2.5	A-Bed	280	Calc
BLD16-42A1	721326		200	202	2	Mdst/Sltst	Gry/Blk	2.5	A-Bed	280	
BLD16-42A1	721327		202	204	2	OO Sltst	Blk	3	A-Bed	280	
BLD16-42A1	721328		204	206	2	OO SS	Blk	3	A-Bed	280	
BLD16-42A1	721329		206	208	2	Mdst	Blk	2	A-Bed	280	
BLD16-42A1	721330		208	210	2	OO Mdst	Tan/Brn	3	A-Bed	280	
BLD16-42A1	721331		210	212	2	Calc Mdst	Tan/Brn	4	FWS	80	
BLD16-42A1	721332		212	214	2	Calc Mdst	Brn/Blk	4	FSM	81	
BLD16-42A1	721333	721334	214	218	4	Calc Mdst	Tan/Brn	3	LMS	90	
BLD16-42A1	721335	721340	218	242	24	Blocky	Lt Gry	4	LMS	90	

Drill Hol

Hole ID	BLD16-42V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	421953.21	**Depth**	34	**Log Date**	8/15/16	**Sent to Lab**	9/19/16
East	842994.11	**Hole Angle**	90	**Drill start**	6/29/16	**Received from lab**	9/24/16
Elevation	6665.692	**Hole Bearing**		**Drill End**	7/6/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-42V1	759617	759619	0	15	15	Mdst	Lt Brn	3	Colluv	2	
BLD16-42V1	759620	759626	15	34	19	Mdst/Sltst	Drk Gry	3	UW	30	

Drill Hole Log

Hole ID	BLD16-43V1	Logged By:	SDK	Dates:		Type	RC
North	426406.8	Depth	152	Log Date	7/26/16	Sent to Lab	9/6/16
East	841111.6	Hole Angle	90	Drill start	7/9/16	Received from lab	9/8/16
Elevation	6742.287	Hole Bearing		Drill End	7/10/16	Lease	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-43V1	759902	759903	0	10	10	Mdst	Blk/Gry	2	Colluv	2	
BLD16-43V1	759904	759909	10	26	16	Sh/Mdst	Gry/Blk	3	CWS	40	
BLD16-43V1	759910	759916	26	42	16	Mdst	Brn/Blk	2.5	CWS	40	
BLD16-43V1	759917	759925	42	60	18	Sh/Mdst	Gry/Blk	3	CWS	40	
BLD16-43V1	759926	759930	60	70	10	Mdst	Brn	2.5	CWS	40	
BLD16-43V1	759931	759938	70	86	16	Sltst/Sh	Blk	3	CWS	40	
BLD16-43V1	759939		86	88	2	Sltst/Sh	Blk/Gry	2.5	C-Bed	240	
BLD16-43V1	759940		88	90	2	Sltst/Sh	Blk/Gry	2.5	C-Bed	240	
BLD16-43V1	759941		90	92	2	Sltst/Sh	Blk/Gry	2.5	FC	50	
BLD16-43V1	759942		92	94	2	Sltst/Sh	Blk/Gry	2.5	FC	50	
BLD16-43V1	759943		94	96	2	Sltst/Sh	Blk/Gry	2.5	FC	50	
BLD16-43V1	759944		96	98	2	Calc Mdst	Brn/Blk	3	FC	50	
BLD16-43V1	759945		98	100	2	Calc Mdst	Brn	3	B2	250	
BLD16-43V1	759946		100	102	2	Calc Mdst	Brn	3	LW	60	
BLD16-43V1	759947		102	104	2	Sltst/SS	Gry	3	LW	60	
BLD16-43V1	759948		104	106	2	Sltst/SS	Gry	3	B1	260	
BLD16-43V1	759949		106	108	2	Sltst/Mdst	Brn/Gry	2.5	B1	260	
BLD16-43V1	759950		108	110	2	Sltst	Brn/Gry	3	B1	260	
BLD16-43V1	759951		110	112	1.9	Sltst	Brn/Gry	2.5	B1	260	
BLD16-43V1			111.9	112	0.1	Sltst	Brn/Gry	2.5	CAP	70	
BLD16-43V1	759952		112	114	2	Sltst	Brn/Gry	2.5	A-Bed	280	
BLD16-43V1	759953		114	116	2	Sltst/Mdst	Brn/Gry	2.5	A-Bed	280	
BLD16-43V1	759954		116	118	2	Mdst/SH	Brn/Gry	2	A-Bed	280	
BLD16-43V1	759955		118	120	2	Mdst/Sltst	Drk Brn/Gry	3	A-Bed	280	
BLD16-43V1	759956		120	122	2	Mdst/Sltst	Drk Brn/Gry	3	A-Bed	280	
BLD16-43V1	759957		122	124	2	Mdst/Sltst	Drk Brn/Gry	3	A-Bed	280	
BLD16-43V1	759958		124	126	2	Mdst	Brn	3	FWS	80	
BLD16-43V1	759959		126	128	2	Mdst	Brn	3	FWS	80	
BLD16-43V1	759960		128	130	2	Blocky	Blk/Gry	4	FSM	81	
BLD16-43V1	759961	759967	130	152	22	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-44V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	426552.33	**Depth**	162	**Log Date**	7/20/16	**Sent to Lab**	9/6/16
East	841048.39	**Hole Angle**	90	**Drill start**	7/10/16	**Received from lab**	9/8/16
Elevation	6742.433	**Hole Bearing**		**Drill End**	7/10/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
z	759966	759969	0	18	18	Mdst	Gry	2	CWS	40	
BLD16-44V1	759970	759973	18	26	8	Sltst/Mdst	Drk Gry	3	CWS	40	
BLD16-44V1	759974	759983	26	46	20	Mdst	Brn	3	CWS	40	
BLD16-44V1	759984	759987	46	54	8	Mdst/Sh	Drk Gry/Blk	3	CWS	40	
BLD16-44V1	759988	759994	54	68	14	Sltst	Blk	3	CWS	40	
BLD16-44V1	759995	759998	68	76	8	Mdst	Brn/Blk	3	CWS	40	
BLD16-44V1	759999	760000	76	80	4	Sltst	Blk	3	CWS	40	
BLD16-44V1	751550	751548	80	86	6	Sltst	Blk	3	CWS	40	
BLD16-44V1	751547	751545	86	92	6	Mdst	Drk Gry/Blk	3	CWS	40	
BLD16-44V1	751544		92	94	2	Sltst/Mdst	Drk Gry/Blk	3	C-Bed	240	
BLD16-44V1	751543		94	96	2	Sltst	Blk	3	C-Bed	240	
BLD16-44V1	751542		96	98	2	Sltst	Blk	3	FC	50	
BLD16-44V1	751541		98	100	2	Sltst	Blk	3	FC	50	
BLD16-44V1	751540		100	102	2	Sltst/Mdst	Drk Gry/Brn	3	FC	50	
BLD16-44V1	751539		102	104	2	Calc Mdst	Brn	3	FC	50	
BLD16-44V1	751538		104	106	2	Sltst	Blk	3	B2	250	
BLD16-44V1	751537		106	108	2	Sltst/Mdst	Blk/Brn	3	B2	250	
BLD16-44V1	751536		108	109.9	1.9	Sltst/Mdst	Blk/Brn	3	B2	250	
BLD16-44V1			109.9	110	0.1	Sltst/Mdst	Blk/Brn	3	LW	60	
BLD16-44V1	751535		110	112	2	Sltst	Drk Gry	3	B1	260	
BLD16-44V1	751534		112	114	2	Sltst	Drk Gry	3	B1	260	
BLD16-44V1	751533		114	116	2	Sltst/Mdst	Drk Gry	3	B1	260	
BLD16-44V1	751532		116	118	2	Calc Mdst	Blk/Brn	3	CAP	70	
BLD16-44V1	751531		118	120	2	Calc Mdst	Blk/Brn	3	A-Bed	280	
BLD16-44V1	751530		120	122	2	Sltst/Mdst	Blk/Brn	2	A-Bed	280	
BLD16-44V1	751529		122	124	2	Mdst/Sltst	Drk Gry/Blk	2	A-Bed	280	
BLD16-44V1	751528		124	126	2	Mdst	Drk Brn	2	A-Bed	280	
BLD16-44V1	751527		126	128	2	Mdst	Drk Brn	2	A-Bed	280	
BLD16-44V1	751526		128	130	2	Mdst	Brn	3	A-Bed	280	
BLD16-44V1	751525		130	132	2	Mdst	Brn	3	FWS	80	
BLD16-44V1	751524		132	134	2	Mdst	Drk Gry/Brn	4	FSM	81	
BLD16-44V1	751523	751516	134	162	28	Blocky	Lt Gry	4	LMS	90	

Drill Hole Log

Hole ID	BLD16-45V1	**Logged By:**	SDK	**Dates:**		**Type**	RC
North	427110.82	**Depth**	72	**Log Date**	7/26/16	**Sent to Lab**	9/10/16
East	841028.21	**Hole Angle**	90	**Drill start**	7/21/16	**Received from lab**	9/13/16
Elevation	6708.991	**Hole Bearing**		**Drill End**	7/21/16	**Lease**	Ballard

DH ID	Sample #	Sample #	From	To	Interval	Description	Color	Hard-ness	Lith	Lith-code	Comments
BLD16-45V1	751984	751986	0	15	15	Mdst	Gry/Blk	3	CWS	40	
BLD16-45V1	751987		15	15.5	0.5	Mdst	Gry/Blk	3	CWS	40	
BLD16-45V1	751988		15.5	16	0.5	Mdst	Gry/Blk	3	CWS	40	
BLD16-45V1	751989	751990	16	20	4	Mdst	Gry/Blk	3	CWS	40	
BLD16-45V1	751991		20	22	2	Sltst/Mdst	Brn/Gry	3	C-Bed	240	
BLD16-45V1	751992		22	24	2	Calc Mdst	Brn/Gry	4	C-Bed	240	
BLD16-45V1	751993		24	26	2	Sltst/Mdst	Brn/Gry	2.5	C-Bed	240	
BLD16-45V1	751994		26	28	2	Sltst/Mdst	Brn/Gry	2.5	C-Bed	240	
BLD16-45V1	751995		28	30	2	Sltst/Mdst	Lt Gry/Gry	2.5	C-Bed	240	
BLD16-45V1	751996		30	32	2	Calc Mdst	Gry	3.5	FC	50	
BLD16-45V1	751997		32	34	2	Sltst	Gry		B2	250	
BLD16-45V1	751998		34	36	2	Sltst	Gry		B2	250	
BLD16-45V1	751999		36	38	2	Calc Mdst	Gry/Blk	3	LW	60	
BLD16-45V1	752000		38	40	2	Sltst	Blk	3	B1	260	
BLD16-45V1	713601		40	42	2	Sltst	Blk	3	CAP	70	
BLD16-45V1	713602		42	44	2	Sltst	Gry/Blk	3	CAP	70	
BLD16-45V1	713603		44	46	2	Sltst/Mdst	Gry	3	A-Bed	280	
BLD16-45V1	713604		46	48	2	Mdst	Brn	2	A-Bed	280	
BLD16-45V1	713605		48	49.9	1.9	Blocky	Gry/Blk	4	FWS	80	
BLD16-45V1			49.9	50	0.1	Blocky	Gry/Blk	4	FSM	81	
BLD16-45V1	713606	713613	50	72	22	Blocky	Lt Gry	4	LMS	90	

APPENDIX A-2

ODEX BORING LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL NAMES
COARSE GRAINED SOIL	GRAVEL	CLEAN GRAVEL		GW	Well–Graded Gravel, Gravel–Sand Mixtures.
				GP	Poorly–Graded Gravel, Gravel–Sand Mixtures.
		GRAVEL WITH FINES		GM	Silty Gravel, Gravel–Sand–Silt Mixtures.
				GC	Clayey Gravel, Gravel–Sand–Clay Mixtures.
	SAND	CLEAN SAND		SW	Well–Graded Sand, Gravelly Sand.
				SP	Poorly–Graded Sand, Gravelly Sand.
		SAND WITH FINES		SM	Silty Sand, Sand–Silt Mixtures.
				SC	Clayey Sand, Sand–Clay Mixtures.
FINE GRAINED SOIL	SILT AND CLAY LIQUID LIMIT LESS THAN 50%			ML	Inorganic Silt, Sandy or Clayey Silt.
				CL	Inorganic Clay of Low to Medium Plasticity, Sandy or Silty Clay.
				OL	Organic Silt and Clay of Low Plasticity.
	SILT AND CLAY LIQUID LIMIT GREATER THAN 50%			MH	Inorganic Silt, Micaceous Silt, Plastic Silt.
				CH	Inorganic Clay of High Plasticity, Fat Clay.
				OH	Organic Clay of Medium to High Plasticity.
				PT	Peat, Muck and Other Highly Organic Soil.

BORING LOG SYMBOLS

- Standard 2–Inch OD Split–Spoon Sample
- California Modified 3–Inch OD Split–Spoon Sample
- Rock Core
- Shelby Tube 3–Inch OD Undisturbed Sample

GROUNDWATER SYMBOLS

- Groundwater After 24 Hours
- (7–3–07) Indicates Date of Reading
- Groundwater at Time of Drilling

TEST PIT LOG SYMBOLS

- BG Baggie Sample
- BK Bulk Sample
- RG Ring Sample

Shorthand Notation:
BGS = Below Existing Ground Surface
N.E. = None Encountered

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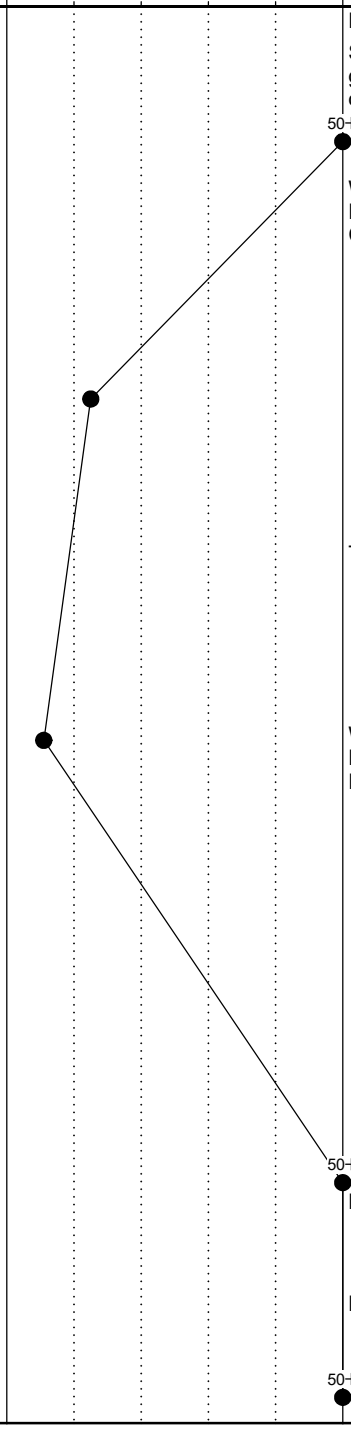
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
SILT WITH GRAVEL, (ML) brown, medium dense to dense, moist (Topsoil) - Fill	0	6548.0	ML	BK				N42°50.100',W111°28.529' Surface condition: Long grasses, significant organics in the upper 18".
POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, very dense to medium dense, moist - Fill		6546.5	GP-GM	BK	32 50/5.5"	50+		Weak to strong HCL Reaction. Cobbles up to 3" in size.
	5			BK	12 16 19	*25		
Dark brown				BK				Trace organics
	10			BK	5 7 10	*11		Wood debris. None to weak HCL Reaction.
(RX) BEDROCK, moderately weathered, brown tan, Very weak to weak Rock. (Likely Dinwoody) - Native	15	6533.0	RX	BK	50/5.5"	50+		Low recovery
				BK				Low recovery
	20	6527.3		BK	39 50/3.0"	50+		

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Borehole Terminated at 20.8 Feet.

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-01BGT
Project: PO16053B	**Date Drilled:** 09-10-2016
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti

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Integrity from the Ground Up

EXPLORATORY BORING LOG

Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●	% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
SILT WITH GRAVEL, (ML) yellow brown, medium dense, moist (Topsoil) -Native	0	6616.0	ML	BK						N42°50.066',W111°28.505' Surface condition: Long grass and sage brush. Significant organics in the upper 24".
(RX) BEDROCK, moderately to highly weathered, brown yellow, Very weak to weak rock. (Likely Dinwoody.)		6614.0	RX		18 25 42	*45				
				BK						
	5				14 27 73	*67				
				BK						
	10				50/5.5"	50+				
				BK						
	15				50/2.0"	50+				
				BK						
		6599.5								

Borehole Terminated at 16.5 Feet.

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-01GT	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-08-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	TEST RESULTS (Pocket Penetrometer, TSF ▲ 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5; SPT, N-Value ●; % Passing No. 200 Sieve ★ PL MC LL 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
	0	6560.0							
SANDY SILT WITH GRAVEL, (ML) brown, medium dense, moist (Topsoil) -Native			ML	BK					N42°49.991',W111°28.446' Surface condition: Long grass and sage brush. Significant organics in the upper 18".
		6558.5							
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) brown, dense to very dense, moist (Likely highly weathered Dinwoody)			GP-GC	■	27 50/5.5"	50+			50+ Weak HCL reaction.
				BK					
		6555.0							
(RX) BEDROCK, moderately weathered, brown yellow, Weak Rock. (Likely Dinwoody)	5			■	22 50/4.5"	50+			50+ Weak HCL reaction.
				BK					
	10		RX	■	36 50/4.0"	50+			50+ Veak to strong HCL Reaction.
				BK					
	15	6544.5		■	50/5.5"	50+			50+
Borehole Terminated at 15.5 Feet.									* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-02GT	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-09-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	TEST RESULTS (Pocket Penetrometer, TSF ▲ / SPT, N-Value ● / % Passing No. 200 Sieve ★)	Remarks (Note: BGS = Below Ground Surface)
SANDY SILT WITH GRAVEL, (ML) brown, medium dense, moist (Topsoil) -Native	0	6590.0	ML	BK					N42°49.859W111°28.409' Surface condition: Long grass, sage brush, and aspen trees. Significant organics in the upper 18".
(RX) BEDROCK, moderately weathered, brown yellow, moist, Very weak to weak rock. (Likely Dinwoody)		6588.5			22 25 29	*36			Low recovery
				BK					
	5				50/4.0"	50+		50+	Low recovery
			RX						
				BK					Very difficult drilling.
	10	6579.2			40 50/3.5"	50+		50+	
Borehole Terminated at 10.8 Feet.									* Modified california N value corrected using the Lacroix and Horn factor of 0.67

TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●; % Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)

Client: P4 Production, LLC	**Boring Number:** BLD16-03GT	STRATA A Professional Services Corporation — Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-10-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●	% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
SILT WITH SAND, (ML) brown, loose to medium dense, moist (Topsoil) -Native	0	6509.0	ML	BK	5 4 6	*7				N42°49.646',W111°28.375' Surface conditions: Grass, and aspen trees. Significant organics in upper 24". Tree roots in upper 4' Low to medium plasticity. Weak HCL reaction. Low recovery
SILTY GRAVEL, (GM) brown, medium dense, moist	5	6504.0	GM	BK	8 11 11	*15				Low recovery Medium plasticity Cobbles > 3"
POORLY GRADED GRAVEL WITH SAND, (GP) black, very dense, saturated, (Likely upper ore)	10	6498.5	GP	BK	15 26 50/4.0"	50+			50+	
				BK	50/3.0"	50+			50+	Low recovery below 15'
	20			BK	50/3.0"	50+			50+	
	25			BK	50/3.0"	50+			50+	
	30			BK	50/3.5"	50+			50+	
	35	6473.2		BK	49 50/3.5"	50+			50+	

09-11-16

Borehole Terminated at 35.8 Feet.

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-05GT
Project: PO16053B	**Date Drilled:** 09-11-2016
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX
Depth to Groundwater: 12'	**Logged By:** R. Benedetti

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EXPLORATORY BORING LOG

Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

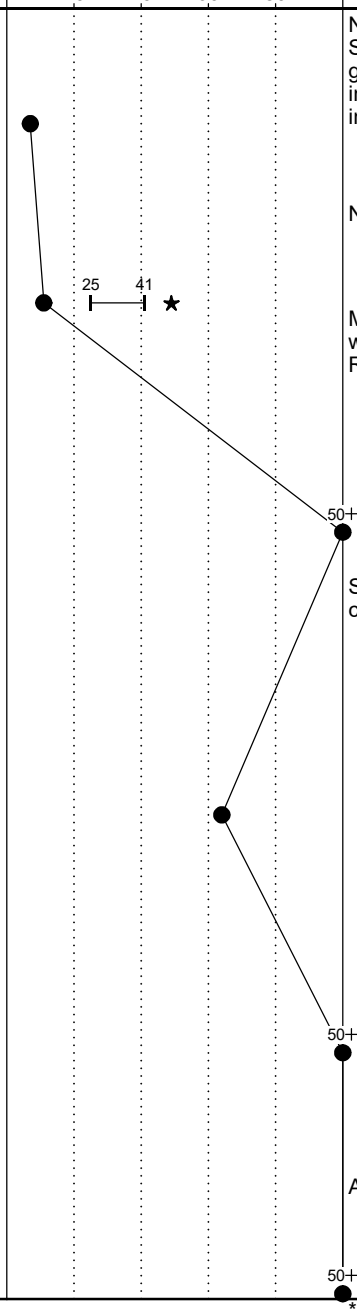
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
CLAYEY SAND WITH GRAVEL, (SC) brown, loose to medium dense, moist -Native	0	6473.0	SC	BK				N42°49.373',W111°28.728' Surface condition: Long grass, significant organics in upper 3'. Trace organics in upper 5'.
					3 4 6	*7		
				BK				No recovery
	5				6 8 9	*11		Medium plasticity and weak to strong HCL Reaction.
				BK				
POORLY GRADED GRAVEL WITH CLAY, (GP-GC) brown, very dense, moist to very moist, (Likely highly weathered Chert)	10	6463.0	GP-GC		50/5.5"	50+		Sub-anuglar to angular cobbles > 3".
				BK				
	15				33 46 50	*64		
				BK				
	20				36 50/3.5"	50+		
(RX) BEDROCK, slightly weathered to moderately weathered, gray black, saturated, Strong rock, (likely Chert)		6452.0	RX	BK				Angular
	25	6447.8			50/2.5"	50+		

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



09-13-16

Borehole Terminated at 25.2 Feet.

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-06GT	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-13-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

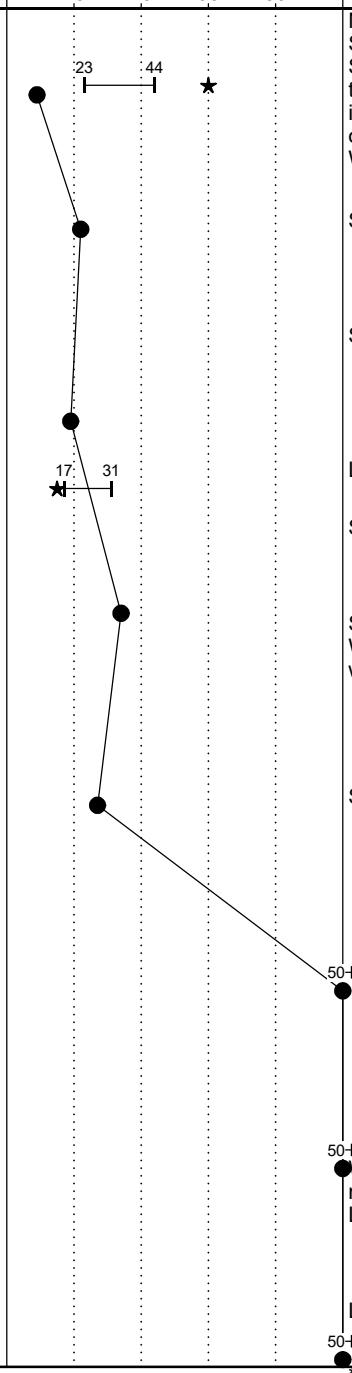
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
SANDY LEAN CLAY, (CL) brown, loose to medium dense, moist (Topsoil) - Native	0	6571.0	CL	BK	5 6 7	*9		N42°49.300',W111°28.748 Surface condition: Grass, Sage brush, and aspen trees. Significant organics in the upper 24". Trace organics in the upper 5'. Weak HCL reaction
CLAYEY SAND WITH GRAVEL, (SC) yellow tan, medium dense to dense, moist (Likely highly weathered Dinwoody)	5	6567.0	SC	BK	17 16 17	*22		Strong HCL reaction
				BK				Strong HCL reaction
	10			BK	14 13 16	*19		Low recovery
				BK				Strong HCL reaction
	15			BK	34 31 20	*34		Strong HCL reaction Weathering decreasing with depth.
(RX) BEDROCK, moderately weathered, olive gray (Likely Dinwoody)	20	6551.0	RX	BK	17 19 21	*27		Strong HCL reaction
				BK				
	25			BK	12 46 50/2.0"	50+		
	30			BK	50/5.0"	50+		Weak to strong HCL reaction Low recovery
				BK				Low recovery
	35	6535.6			50/4.5"	50+		

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Borehole Terminated at 35.4 Feet.

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-07GT	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-21-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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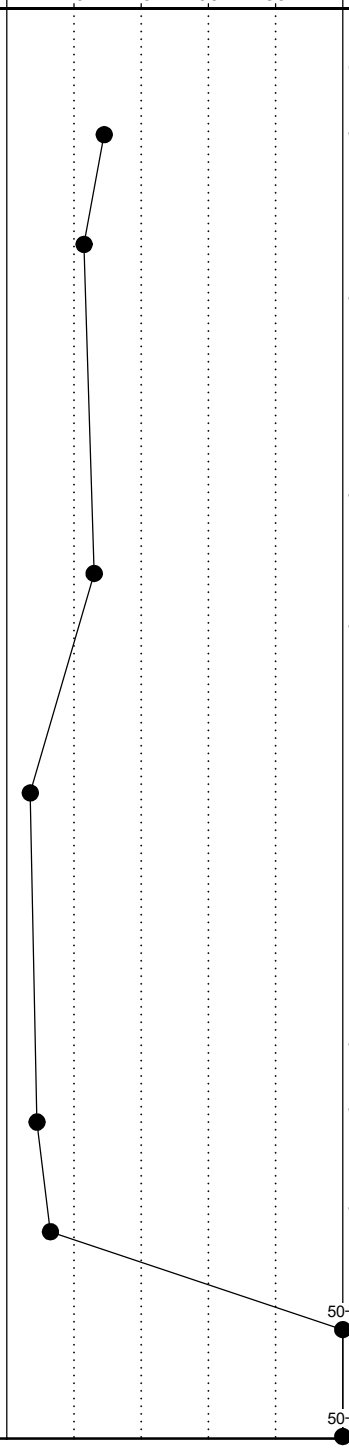
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
SANDY SILT WITH GRAVEL, (ML) brown, medium dense, moist - Fill	0	6575.0	ML	BK				N42°49.787',W111°29.087' Surface condition: Long grass, significant organics in the upper 18".
POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, medium dense, moist - Fill		6570.0	GP-GM	BK	15 21 23	*29		Low plasticity Weak to strong HCL reaction
	10			BK	30 16 19	*23		Low plasticity Weak to strong HCL reaction
	20			BK				Weak HCL reaction
SANDY SILT WITH GRAVEL, (ML) brown, medium dense, very moist to wet - Fill		6549.3	ML	BK	2 19 20	*26		Weak to strong HCL reaction Increased moisture Low to medium plasticity
	30			BK				
POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) tan brown, loose, moist - Fill		6540.0	GP-GM	BK	5 4 7	*7		Decreased drilling difficulty
	40			BK				Low to medium plasticity Trace organics
POORLY GRADED GRAVEL WITH CLAY, (GP-GC) turquoise olive green, moist (Likely highly weathered Dinwoody) -Native	50	6525.0	GP-GC	BK	4 6 7	*9		Weak to strong HCL reaction
		6518.0		BK	5 5 14	*13		Weak to strong HCL reaction
(RX) BEDROCK, moderately weathered, tan, moist, Weak Rock, (Likely Dinwoody)	60		RX	BK	50/5.0"	50+		Weak to strong HCL reaction
		6509.8		BK	50/2.0"	50+		
Borehole Terminated at 65.2 Feet.								* Modified california N value corrected using the Lacroix and Horn factor of 0.67

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Client: P4 Production, LLC	**Boring Number:** BLD16-08GT	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-20-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

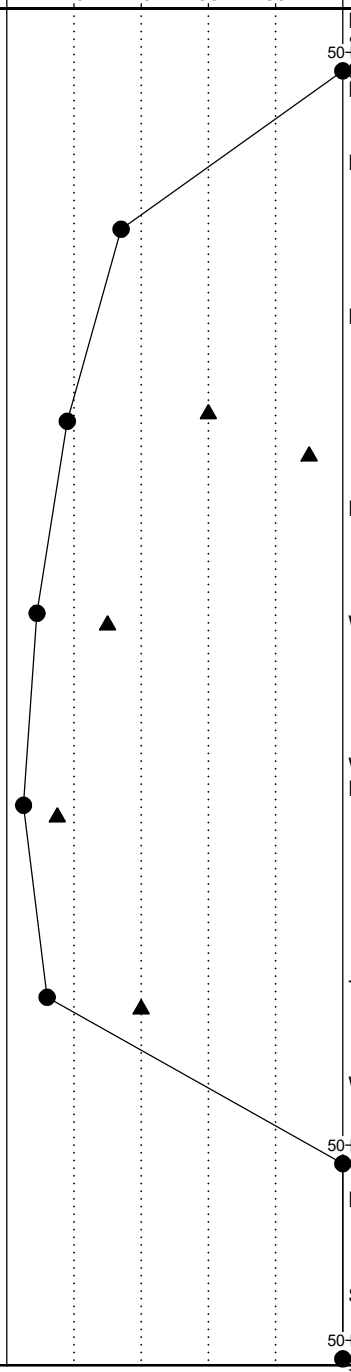
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, dense to very dense, moist - Fill	0	6607.0	GP-GM	BK	50/3.0"	50+		N42°49.600',W111°29.045' Surface Condition: Long grass, sage brush. Low recovery
				BK				Low recovery
	5				30 30 21	*34		
SANDY LEAN CLAY WITH GRAVEL, (CL) light brown, very stiff to firm, moist - Fill		6599.5	CL	BK				Low recovery
	10				7 11 16	*18		
				BK				Low recovery
	15				5 7 6	*9		Weak HCL reaction
				BK				
	20				3 3 4	*5		Weak HCL reaction Medium to high plasticity
				BK				
	25				5 9 9	*12		Trace gravel
				BK				Weak HCL reaction
(RX) BEDROCK, moderately weathered, light brown olive, dry, Weak Rock. (Likely Dinwoody) - Native		6578.0	RX					
	30			BK	50/2.0"	50+		Low recovery
								Strong HCL reaction
	35	6571.7		BK	50/4.0"	50+		

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Borehole Terminated at 35.3 Feet.

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-09GT
Project: PO16053B	**Date Drilled:** 09-21-2016
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti

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Integrity from the Ground Up

EXPLORATORY BORING LOG

Sheet 1 Of 1

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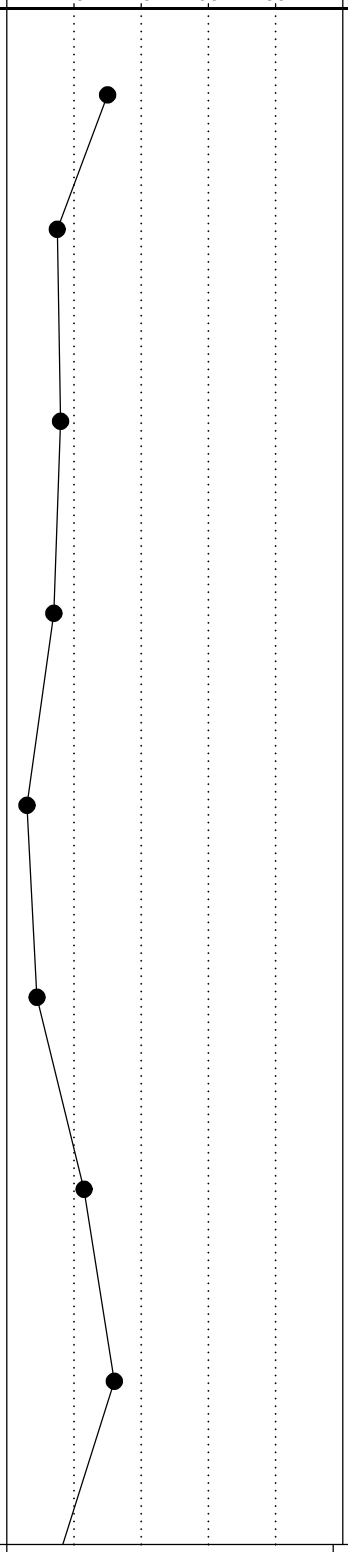
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) gray brown, medium dense to dense, moist - Fill	0	6839.0	GP-GM	BK				N42°49.834',W111°29.099' Surface condition: Long grass
					14 17 28	*30		
				BK				
	5				11 11 12	*15		
				BK				
	10				11 12 12	*16		Increased fines Weak to strong HCL reaction
				BK				
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) gray brown, medium dense, moist - Fill	15	6824.0	GP-GC		12 12 9	*14		Medium plasticity
				BK				Weak to strong HCL Reaction
SANDY LEAN CLAY WITH GRAVEL, (CL) light brown, firm, moist - Fill	20	6819.0	CL		4 4 5	*6		Medium plasticity Weak to strong HCL reaction
				BK				Low recovery
	25				4 6 7	*9		
				BK				Low recovery
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) brown, medium dense to dense, moist - Fill	30	6809.0	GP-GC		11 14 20	*23		Weak to strong HCL Reaction
				BK				
	35				14 18 30	*32		
POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, medium dense, moist - Likely Fill	40	6802.0	GP-GM	BK				

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Client: P4 Production, LLC	**Boring Number:** BLD16-10GT
Project: PO16053B	**Date Drilled:** 09-14-2016
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti

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EXPLORATORY BORING LOG

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STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

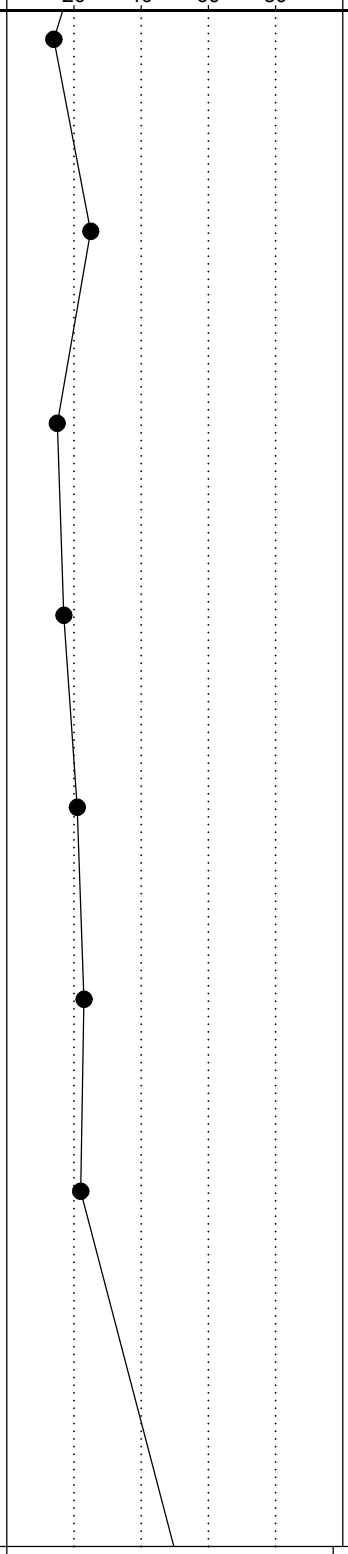
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, medium dense, moist - Likely Fill *(continued)*	40		GP-GM		25 11 10	*14		
				BK				
	45				12 20 17	*25		Weak to strong HCL reaction
				BK				
	50				10 10 12	*15		Medium plasticity
				BK				
	55				10 12 14	*17		Weak to strong HCL reaction
				BK				
	60				10 13 19	*21		
				BK				
	65				16 19 15	*23		Weak HCL reaction
				BK				
	70	6769.0			12 14 19	*22		
SANDY SILT WITH GRAVEL, (ML) dark brown, medium dense to dense, moist - Likely Fill				BK				
	75		ML					
				BK				
	80	6759.0						

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Note: BGS = Below Ground Surface

Client: P4 Production, LLC	**Boring Number:** BLD16-10GT
Project: PO16053B	**Date Drilled:** 09-14-2016
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti

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EXPLORATORY BORING LOG

(Continued Next Page)

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USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	TEST RESULTS	Remarks
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) tan brown, dense to very dense, moist to very moist - Likely Native	80		GP-GC	BK	4 46 32	*52			
	85			BK	13 25 38	*42			Trace organics
(RX) BEDROCK, moderately weathered, olive tan, moist, Very weak rock. (Likely Dinwoody) - Native		6751.0	RX	BK					
	90			BK	11 19 27	*31			Weak HCL reaction
	95	6742.5		BK	12 19 24	*29			

TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●; % Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)

Remarks: Note: BGS = Below Ground Surface

Borehole Terminated at 96.5 Feet.

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-10GT	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-14-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 3 Of 3

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●	% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
POORLY GRADED GRAVEL WITH SAND, (GP) gray brown, dense to very dense, moist	0	6833.0								N42°49.878',W111°29.059' Surface condition: Long grass, weeds. Significant organics in the upper 8".
-Native				BK						Low recovery
	5				45 42 50/4.0"	50+		50+		Boulders encountered.
			GP	BK						
	10				23 26 26	*35				
				BK						Weak to strong HCL reaction
	15	6818.0			50/2.0"	50+		50+		
(RX) BEDROCK, moderately weathered, tan, (Likely Sandstone/Limestone)										No recovery
				BK						Strong HCL Reaction
	20		RX		50/4.0"	50+		50+		Low recovery
				BK						
	25	6808.0						50+		Refusal
Borehole Terminated at 25.0 Feet.					50/0.5"	50+				* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-11GT
Project: PO16053B	**Date Drilled:** 09-20-2016
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti

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Integrity from the Ground Up

EXPLORATORY BORING LOG

Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●	% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
CLAYEY SAND WITH GRAVEL, (SC) brown, loose to medium dense, moist	0	6519.0		BK						N42°49.236',W111°28.960' Surface condition: Grasses, sage brush. Significant organics in the upper 12".
					10 7 8	*10				Low recovery
				BK						
	5				8 9 9	*12				Low to medium plasticity Weak to strong HCL reaction.
				BK						
	10				9 8 8	*11				Medium plasticity Weak to strong HCL reaction.
			SC	BK				20 33 ★		
	15				5 6 8	*9		▲		Medium plasticity Weak HCL reaction Slightly increased gravel content.
				BK						
	20				6 9 11	*13				
				BK						
	25				7 15 24	*26				
(RX) BEDROCK, moderately weathered, pale yellow/gray, Weak rock. (Likely Dinwoody)		6492.0		BK						
	30		RX		50/1.0"	50+			50+	No recovery
				BK						Medium plasticity Weak to strong HCL reaction.
	35	6483.9			50/1.5"	50+			50+	
Borehole Terminated at 35.1 Feet.										* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-12GT	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-22-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

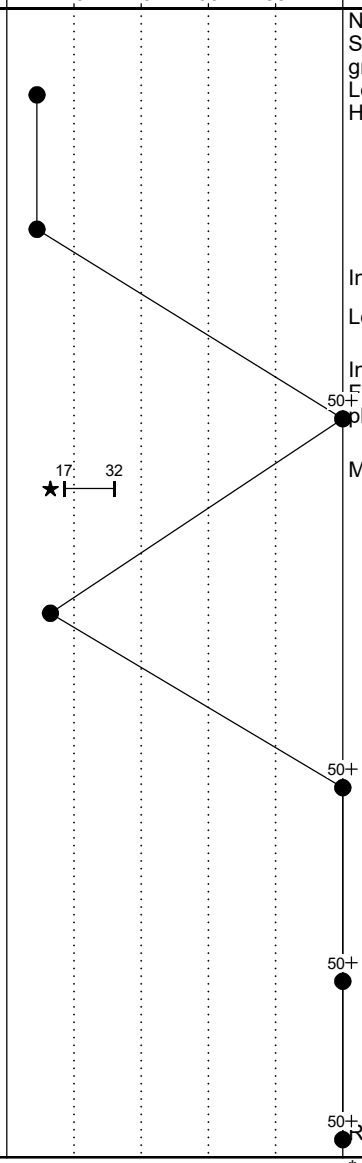
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
CLAYEY SAND WITH GRAVEL, (SC) brown, loose to medium dense, moist -Fill	0	6478.0		BK				N42°49.405',W111°28.907 Surface condition: Long grass and sage brush. Low plasticity and weak HCL reaction.
					3 5 8	*9		
				BK				
	5				6 7 7	*9		
				BK				Increased moisture. Low recovery.
-Native	10		SC		16 17 50/4.5"	50+		Increased gravel size. Fines low to medium plasticity.
				BK				Musty odor.
	15				40 19 11	*13		
				BK				
POORLY GRADED GRAVEL WITH CLAY, (GP-GC) brown, very dense, very moist to wet (Likely highly weathered Dinwoody)	20	6458.0			38 50/1.0"	50+		
				BK				
	25		GP-GC		7 50/2.0"	50+		
				BK				
		6448.1			35 50/5.0"	50+		Refusal

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Borehole Terminated at 29.9 Feet.

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-13AL	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-13-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

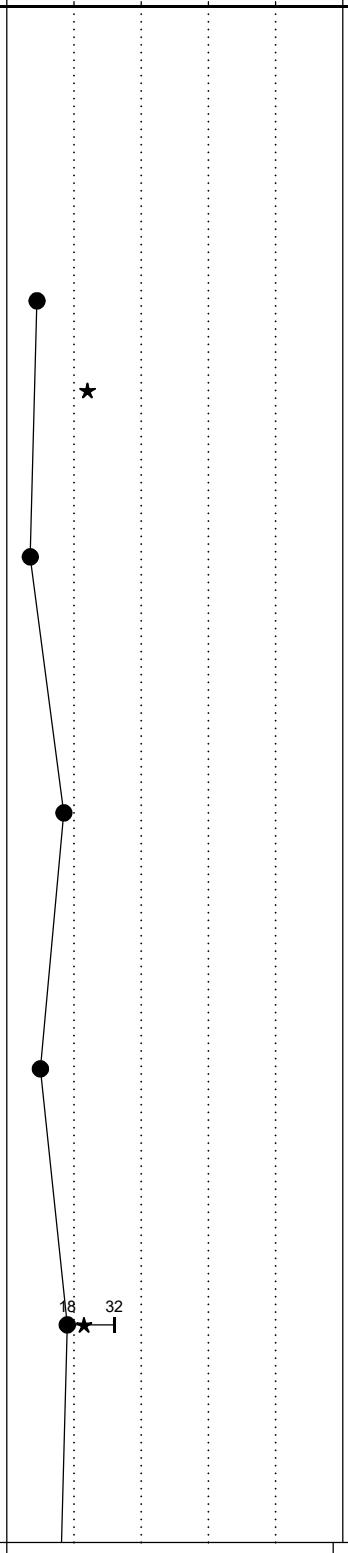
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
SILTY SAND, (SM) brown, loose, moist (Topsoil) -Native	0	6364.0						N42°49.195',W111°29.296' Surface condition: grass, organics in the upper 18".
				BK				Low recovery
	5				8 6 7	*9		
			SM	BK				Fines non-plastic
	10				5 5 5	*7		Increase in gravel.
				BK				
CLAYEY SAND, (SC) tan, medium dense, moist	15	6349.0			8 11 14	*17		
				BK				Increased plasticity
	20				6 8 7	*10		Weak to strong HCL reaction
			SC	BK				Medium plasticity Weak to strong HCL reaction
	25				8 12 15	*18		
				BK				
	30							

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Client: P4 Production, LLC	**Boring Number:** BLD16-14AL
Project: PO16053B	**Date Drilled:** 09-23-2016
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti

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EXPLORATORY BORING LOG

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(Continued Next Page)

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

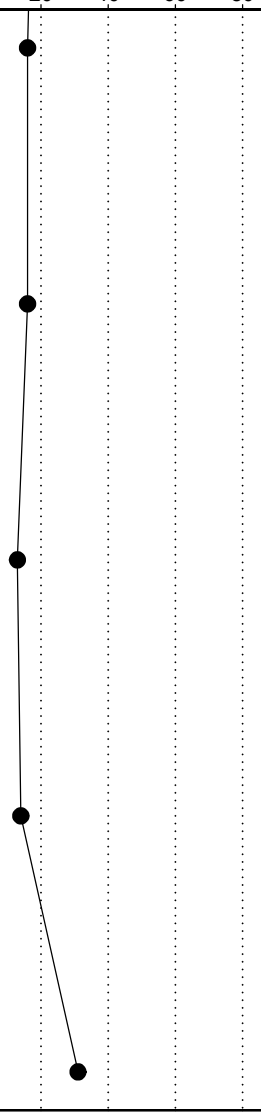
USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
CLAYEY SAND, (SC) tan, medium dense, moist *(continued)*	30		SC	BK	5 10 14	*16		Low recovery
SANDY LEAN CLAY WITH GRAVEL, (CL) tan, stiff, moist	35	6329.0	CL	BK	6 10 14	*16		
	40			BK	3 7 12	*13		
	45			BK	8 10 11	*14		Weak HCL reaction
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) brown, dense, moist to very moist	50	6315.0 6312.5	GP-GC	BK	8 18 29	*31		Weak to strong HCL reaction. Medium plasticity Increased drilling difficulties at 49'

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)



Borehole Terminated at 51.5 Feet.

Note: BGS = Below Ground Surface

* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-14AL	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-23-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 2 Of 2

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	Remarks
								Note: BGS = Below Ground Surface
SANDY SILT WITH GRAVEL, (ML) brown, loose to medium dense, moist (Topsoil)	0	6613.0	ML	BK				N42°49.403',W111°28.628
SILTY SAND WITH GRAVEL, (GP-GM) brown, medium dense to very dense, moist		6612.0	GP-GM		16 22 23	*37		Sub-angular to rounded
				BK				No recovery
	5				23 27 28	*37		Weak to strong HCL reaction
				BK				
	10				50/5.5"	50+		Medium plasticity and weak to strong HCL reaction.
				BK				Fines non-plastic Surface condition: Sage brush, significant organics in the upper 18".
	15				24 50/5.0"	50+		Medium to low plasticity. Weak HCL reaction
				BK				
	20				27 50/5.5"	50+		Medium plasticity Cobbles up to 3" in size and easily fractured
				BK				
SILTY SAND WITH GRAVEL, (GP-GM) dark brown, very dense, moist	25	6588.0	GP-GM		50/4.0"	50+		
				BK				Increased moisture
	30							

TEST RESULTS

Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5)

SPT, N-Value ●

% Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)

Client: P4 Production, LLC	**Boring Number:** BLD16-15AL
Project: PO16053B	**Date Drilled:** 09-11-2016
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti

STRATA
A Professional Services Corporation
Integrity from the Ground Up

EXPLORATORY BORING LOG

(Continued Next Page)

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USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT $N_{(60)}$	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●; % Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
SILTY SAND WITH GRAVEL, (GP-GM) dark brown, very dense, moist *(continued)*	30				31 50/4.5"	50+			50+ Medium plasticity Weak HCL reaction
				BK					
	35				37 45 50/4.5"	50+			50+
				BK				★	Fines non-plastic
	40		GP-GM		50/2.5"	50+			50+ Low recovery Medium to high plasticity Weak HCL reaction
				BK					
	45				50/2.0"	50+			50+
			09-11-16	BK					No recovery
	50	6562.9			50/1.5"	50+			50+
Borehole Terminated at 50.1 Feet.									* Modified california N value corrected using the Lacroix and Horn factor of 0.67

Client: P4 Production, LLC	**Boring Number:** BLD16-15AL	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY BORING LOG**
Project: PO16053B	**Date Drilled:** 09-11-2016		
Drill Rig: Delta Base 95G	**Borehole Diameter:** 4" ODEX		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 2 Of 2

STRATA BOREHOLE - STRATA.GDT - 4/17/17 10:08 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD BORING LOGS.GPJ

APPENDIX A-3

TEST PIT LOGS

USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
	0	6450.0									
CLAYEY SAND, (SC) brown, medium dense, moist -Native		6449.3	SC								N42°49.376', W111°28.889' Surface Condition: Sage brush and weeds. Significant organics in upper 18"
(RX) BEDROCK, moderately to highly weathered, brown gray, very weak to moderately strong rock (Likely Chert)			RX		BK						Layered/Bedded
	5										
		6443.5									Equipment refusal at 6.5'

Test Pit Terminated at 6.5 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-1	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
	0	6598.0									
CLAYEY SAND WITH GRAVEL, (SC) brown to dark brown, medium dense, moist, (Topsoil) -Native			SC						1.0		N42°50.061', W111°28.578' Surface condition: Tall grass and weeds. Significant organics in upper 36-48". Generally low to medium plasticity with areas of medium to high plasticity
		6594.0									
SILT WITH SAND, (SM) black to dark brown, medium dense, moist, (Likely Lower Ore)	5 10		SM								Slightly more difficult excavation. Cobbles angular to sub-rounded and easily broken down.
		6583.5									

Test Pit Terminated at 14.5 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-2	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
		6546.0									
(RX) BEDROCK, moderately weathered, pale yellow/gray, Very weak to moderately weak. (Likely Dinwoody) -Native	0	6542.0	RX		BK						N42°49.922', W111°28.402' Surface Condition: Grasses. Significant organics in upper 5". Equipment refusal at 4'.

Test Pit Terminated at 4.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-3	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
SILT, (ML) brown, medium dense to loose, moist, trace gravel (Topsoil) -Native	0	6575.0	ML		BK				1.5		N42°49.839', W111°28.393' Surface condition: Grass and sage brush. Significant organics in upper 12" Low plasticity in upper 30".
(RX) BEDROCK, moderately to highly weathered, brown yellow, Very Weak to Moderately Weak Rock. (Likely Dinwoody)	5	6572.5	RX		BK						Boulders up to 2' in size.
	10	6565.0									Equipment refusal at 10'.

Test Pit Terminated at 10.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-4	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
	0	6590.0									
CLAYEY SAND, (SC) brown, loose to medium dense, moist, (Topsoil) -Native			SC		BK				1.75		N42°49.772', W111°28.426' Surface condition: Long grass, sage brush. Significant organics in upper 18"
		6588.5									
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) brown, medium dense, moist			GP-GC		BK						Cobbles up to 8" in size Increased Plasticity. Boulders up to 16" in size.
		6585.0									
(RX) BEDROCK, slightly to highly weathered, brown, (Likely Chert)	5		RX								
	10										Increased moisture.
		6576.5			BK						

Test Pit Terminated at 13.5 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-5	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
CLAYEY SAND WITH GRAVEL, (SC) brown, loose to medium dense, moist, (Topsoil) -Native	0	6548.0	SC		BK	46.0			4.0 4.25 3.5	37	19	N42°49.721', W111°28.351' Surface condition: Grass, sage brush. Significant organics in the upper 24" Significant organics in upper 24". Tree roots in upper 4'. Medium plasticity
(RX) BEDROCK, moderately to highly weathered, brown yellow, Very weak to moderately Weak Rock (Likely Dinwoody)	5 10	6543.0 6534.5	RX		BK							Equipment refusal at 13.5'.

Test Pit Terminated at 13.5 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-6	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
CLAYEY SAND WITH GRAVEL, (SC) brown, medium dense, moist, (Topsoil) -Native	0	6540.0	SC		BK	46.0			4.5 4.5+	37	19	N42°49.670', W111°28.357' Surface condition: Sage brush, grasses. Significant organics in upper 18"
	5	6532.0										
SILT WITH SAND, (ML) to dark brown black, medium dense, moist, (Likely Lower Ore)	10	6528.0	ML		BK							Cobbles up to 5" in size. Medium plasticity Equipment refusal at 12'
Test Pit Terminated at 12.0 Feet.												Medium plasticity

Client: P4 Production, LLC	**Test Pit Number:** TP-7	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
CLAYEY SAND, (SC) brown, medium dense, moist, (Topsoil) -Native	0	6524.0	SC									N42°49.657', W111°28.319' Surface condition: Long grass, sage brush. Significant organics in the upper 30"
CLAYEY GRAVEL WITH SAND, (GC) pale yellow to gray, medium dense, moist, (Likely highly weathered Dinwoody)	5	6520.7	GC		BK	13.0				33	14	Medium plasticity
	10				BK							
	15	6508.0										

Test Pit Terminated at 16.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-8	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
CLAYEY SAND WITH GRAVEL, (SC) brown, medium dense, moist, (Topsoil) -Native	0	6533.0	SC		BK	46.0			4.5+ 4.5 3.25	37	19	N42°49.631', W111°28.313' Surface condition: Grass, sage brush. Significant organics in the upper 18" Medium plasticity Cobbles and boulders
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) pale yellow to gray, medium dense, moist to very moist, (Likely highly weathered Dinwoody)	5 10 15	6528.0 6518.0	GP-GC		BK BK	12.0				30	12	Medium plasticity

Test Pit Terminated at 15.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-9	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) brown, medium dense, moist -Fill	0	6662.0	GP-GC		BK						N42°49.523', W111°28.644' Surface condition: Gravel roadway with surrounding weeds and grasses. Significant organics in upper 8" Variable plasticity
	5										Weak to strong HCL reaction Increased fines content
	10				BK						Cobbles up to 8" in size.
		6648.5									Equipment refusal at 13.5'

Test Pit Terminated at 13.5 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-10	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA TEST PIT - STRATA.GDT - 4/17/17 11:57 - V:\CLIENTS\M\MONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD TEST PIT LOGS.GPJ

USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
CLAYEY SAND, (SC) brown, medium dense to dense, moist -Fill	0	6683.0	SC								N42°49.502', W111°28.576' Surface condition: Long grass, significant organics in upper 16".
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) gray, loose to medium dense, moist -Fill		6682.0	GP-GC		BK						Weak to strong HCL reaction Medium plasticity
	5										Cobbles up to 8" in size.
	10				BK						
	15	6668.0									

Test Pit Terminated at 15.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-11	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-24-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
CLAYEY GRAVEL WITH SAND, (GC) brown, loose to medium dense, moist (Topsoil) - Native	0	6563.0	GC		BK	44.0				38	17	N42°49.250', W111°28.889' Surface condition: Tall grass, steep slope. Significant organics in upper 2'. Cobbles up to 4" in size.
	5											
(RX) BEDROCK, moderately to highly weathered, yellow, (Very weak to moderately weak rock, Likely Dinwoody)		6556.0	RX		BK							Cobbles up to 6" in size.
	10	6552.5										Equipment refusal at 10.5'.

Test Pit Terminated at 10.5 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-12	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
		6548.0									
POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, loose to medium dense, moist -Fill	0										N42°49.203', W111°28.941' Surface condition: Tall grass, sage brush, and trees. Significant organics in upper 18". Trace organics in upper 4'.
											Cobbles up to 3" in size.
-Likely fill			GP-GM								No samples in fill material as requested by Dave Carpenter.
											Increased excavation difficulty. Cobbles up to 8" in size.
	5										
											Boulders up to 12" in size.
		6540.5									Equipment refusal at 7.5'

Test Pit Terminated at 7.5 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-13	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

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USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
POORLY GRADED GRAVEL WITH SILT, (GC) brown, loose, moist, -Native	0	6497.0	GC									N42°49.312', W111°28.894' Surface condition: Long grass and sage brush. Significant organics in upper 12"
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) pale yellow to gray, medium dense, moist to very moist, (Likely highly weathered Dinwoody)		6496.3	GP-GC		BK	13.0				41	16	Low to moderate excavation difficulties throughout.
	5											
	10											
	15	6481.5										

Test Pit Terminated at 15.5 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-14	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA TEST PIT - STRATA.GDT - 4/17/17 11:57 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD TEST PIT LOGS.GPJ

USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
CLAYEY SAND WITH GRAVEL, (SC) brown, loose to medium dense, moist (Topsoil) -Native	0	6546.0										N42°49.351', W111°28.680' Surface condition: Long grass, sage brush. Significant organics in upper 30".
					BK							Medium plasticity
	5											Increase in gravel cobbles up to 8" in size.
			SC			29.0				36	18	
												High Plasticity
	10				BK							
	15	6530.0										

Test Pit Terminated at 16.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-15	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA TEST PIT - STRATA.GDT - 4/17/17 11:57 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD TEST PIT LOGS.GPJ

USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
CLAYEY SAND WITH GRAVEL, (SC) brown, loose to medium dense, moist (Topsoil). -Native	0	6518.0	SC		BK				1.75			N42°49.405', W111°28.699' Surface conditions: Long grass. Significant organics in the upper 30".
	5								2.0			Medium plasticity
						29.0				36	18	Medium to high Plasticity
(RX) BEDROCK, moderately weathered, brown/gray, (Very weak to moderately weak rock, Likely Chert)	10	6508.0	RX		BK							Transition zone
		6505.0										Equipment refusal at 13'.

Test Pit Terminated at 13.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-16	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA TEST PIT - STRATA.GDT - 4/17/17 11:57 - V:\CLIENTS\M\MONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD TEST PIT LOGS.GPJ

USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) brown, medium dense, moist -Likely fill	0	6442.0	GP-GC		BK						N42°49.387', W111°28.913' Surface Conditions: Tall grass. Significant organics in the upper 2'. Trace organics throughout test pit.
	5				BK						Cobbles 4-8" in size.
	10	6431.0									Equipment refusal at 11'. Boulders up to 12" in size.

Test Pit Terminated at 11.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-17	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA TEST PIT - STRATA.GDT - 4/17/17 11:57 - V:\CLIENTS\M\MONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD TEST PIT LOGS.GPJ

USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
	0	6570.0									
SILT WITH GRAVEL, (ML) black, medium dense to dense, moist, (Potentially upper ore) -Native		6568.0	ML		BK				4.0		N42°49.550', W111°28.915' Surface conditions: Tall grass and weeds. Significant organics in the upper 4". Cobbles up to 3" in size. Cemented layers throughout
SILT WITH SAND, (ML) brown, stiff to very stiff, moist, (Potentially upper ore)		6567.0	ML						4.5		
SILT WITH GRAVEL, (GP-GM) brown/black, very dense, moist, (Potentially upper ore)	5	6565.0	GP-GM		BK				4.5+		Cobbles up to 4" in size. Refusal at 5'.

Test Pit Terminated at 5.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-18	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA TEST PIT - STRATA.GDT - 4/17/17 11:57 - V:\CLIENTS\M\MONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD TEST PIT LOGS.GPJ

USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL PI	Remarks Note: BGS = Below Ground Surface
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) brown, dense to very dense, moist -Likely fill	0	6614.0	GP-GC		BK						N42°49.640', W111°29.015' Surface conditions: Long grass, weeds. Significant organics in the upper 12". Cobbles up to 6" in size.
	5	6607.5									
(RX) BEDROCK, moderately to highly weathered, brown, (Very weak to moderately weak rock, Likely Dinwoody) -Native	10	6603.0	RX		BK						Equipment refusal at 11'

Test Pit Terminated at 11.0 Feet.

Client: P4 Production, LLC	**Test Pit Number:** TP-19	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA TEST PIT - STRATA.GDT - 4/17/17 11:57 - V:\CLIENTS\MMONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD TEST PIT LOGS.GPJ

USCS Description	Depth (ft)	Elevation (ft)	U.S.C.S. Class	Symbol	Sample Type	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	Atterberg Limits LL	Atterberg Limits PI	Remarks Note: BGS = Below Ground Surface
CLAYEY SAND WITH GRAVEL, (SC) brown, medium dense, moist (Topsoil) -Native	0	6567.0	SC		BK	46.0			3.0 2.5	41	25	N42°49.774', W111°28.379' Surface conditions: Long grass, sage brush. Significant organics in the upper 24". Low plasticity
POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) brown/gray, dense, moist, (Likely highly to completely weathered Dinwoody)	5	6562.0	GP-GC		BK							Boulders up to 16" in size.
(RX) BEDROCK, moderately to highly weathered, brown/gray, Very weak to moderately weak rock. (Likely Dinwoody)	10	6557.0	RX		BK							
Test Pit Terminated at 15.0 Feet.	15	6552.0										

Client: P4 Production, LLC	**Test Pit Number:** TP-20	STRATA A Professional Services Corporation Integrity from the Ground Up	**EXPLORATORY TEST PIT LOG**
Project: PO16053B	**Date Excavated:** 08-25-2016		
Backhoe: CAT 312D	**Bucket Width:** 3'		
Depth to Groundwater: N.E.	**Logged By:** R. Benedetti		Sheet 1 Of 1

STRATA TEST PIT - STRATA.GDT - 4/17/17 11:57 - V:\CLIENTS\M\MONSANTO - POS REQUIRED\PO16053B - BALLARD MINE GEOTECHNICAL\ENGINEERING\ELECTRONIC LOGS\PO16053B - BALLARD TEST PIT LOGS.GPJ

APPENDIX B

DAILY FIELD REPORTS AND PHOTOGRAPHS

Daily Field Report

Report #: CDFA-000001

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/07/2016	**Mileage / Vehicle:** 0.0
Start Time: 13:30	**Finish Time:** 18:45	**Hours:** 5.25
Temperature (°F): 70	**Precipitation:** Dry	**Wind:** Breezy

Field Professional - Meeting

Activity Hours: 5.25

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed into my truck, and traveled from the Pocatello office, to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log, and met with David Carpenter, Chris Leatherman, and Molly Prickett of Monsanto. With the drillers arrived on site and Leah Martin on the phone, we had a meeting discussing the logististics and expectations for the drilling at the Ballard mine site. Main topics included the sampling procedure (modified California samplers without rings at 5 foot intervals and cutting samples in-between.), decontamination(decon samplers only, and for drilling equipment, just remove bulk material and clean with compressed air), and hole abandonment (backfill with bentonite and cap with 5' of concrete). we also provided the drillers a quick summary of the project purpose and location, as well as the 10 day on, 4 day off schedule.

I then signed out of the office, returned to soda springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000003

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/08/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 19:00	**Hours:** 12.5
Temperature (°F): 70	**Precipitation:** Dry	**Wind:** Wind Gusts

Field Professional - Observation

Activity Hours: 12.50

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log, and attended the Monsanto site specific training, as well as the Monsanto 6.0 safety training with the drilling crew. After completion of the safety training, I proceeded to retrieve the portable toilet from the Caldwell mine site and transport it back to the Ballard mine staging area.

Next, after the drillers completed their vehicle and equipment inspections, the driller began tracking their drill rig to the first boring location. We began drilling at approximately 2:00pm. Due to setup and the drillers unfamiliarity with the new rig, only 15 feet of drilling was accomplished by the end of the day. Samples were collect at 1.5 feet intervals in the upper 5 feet, and at 5 foot intervals thereafter by use of a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. it should be noted that only approximately 3/4 to 1 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples.

I then returned to the Monsanto mine office, and spoke with Chris Leatherman and Dave Carpenter regarding the activities competed today. I informed them of our progress, and of the volume of samples being obtained. Dave informed me that he would contact Leah with MWH to determine if the sample volume is sufficient, as well as clarification of refusal criteria. I then traveled back to Soda Springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000001

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/08/2016

Description:
Photo 1: Overall of drilling activites.

Photographic Documentation

Report #: PL-000001

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 2: Typical Dinwood sample obtained from BLD16-01GT (1.5-3').

Description:
Photo 3: Typical Dinwoody sample obtained from BLD16-01GT (10-11.5').

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000004

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/09/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:30	**Hours:** 12
Temperature (°F): 70	**Precipitation:** Dry	**Wind:** Wind Gusts

Field Professional - Observation

Activity Hours: 12.00

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log in at the mailbox due to the office being closed for the weekend.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-01GT and BLD16-02GT, both of which were advanced to 16.5 below surface grades where refusal was encountered on very dense dinwoody. Samples were collected at 1.5 feet in the upper 5 feet, and at 5 foot intervals thereafter by use of a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. Again, due to setup, obtaining water for dust control, travel time, and the drillers unfamiliarity with the new rig, 16.5 feet of drilling was accomplished by the end of the day. I then proceeded to show the drillers the location of the boring location added by Dave that is to be designated BLD16-01BGT. The drillers mobilized to this location, and set up to resume drilling tomorrow.

I then returned to the Monsanto mine office, signed out, traveled back to Soda Springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000002

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/09/2016

Description:
Photo 1: Overall of drilling activites at BLD16-01GT.

Description:
Photo 2: Typical topsoil thickness at BLD16-01GT and BLD16-02GT.

Photographic Documentation

Report #: PL-000002

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 3: Overall of drilling activites at BLD16-02GT.

Description:

Photo 4: Typical Dinwoody sample obtained from BLD16-02GT (15-16.5').

Photographic Documentation

Report #: PL-000002

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 5: Typical Dinwoody sample obtained from BLD16-02GT (10-11.5').

Description:
Photo 6: Typical HCL reaction on Dinwoody samples obtained from BLD16-02GT.

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000005

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/10/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:30	**Hours:** 12
Temperature (°F): 70	**Precipitation:** Dry	**Wind:** Light Wind

Field Professional - Observation

Activity Hours: 12.00

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log in at the mailbox due to the office being closed for the weekend.

I then resumed observation of the drilling activities. we completed the drilling of BLD16-01BGT and BLD16-03GT, which were advanced to 21.5 feet and 11.5 feet below surface grades where refusal was encountered on very dense dinwoody. Samples were collected at depths of 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample. I used a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. I then proceeded to show the drillers the location of the boring location designated BLD16-04GT, which did not yet have a drill pad, and BLD16-05GT. The drillers mobilized to the BLD16-05GT location, and set everything up to resume here tomorrow.

I then returned to the Monsanto mine office, signed out, traveled back to Soda Springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000003

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/10/2016

Description:
Photo 1: Overall of BLD16-01BGT after completion.

Description:
Photo 2: Typical Dinwoody sample obtained from BLD16-03GT.

Photographic Documentation

Report #: PL-000003

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 3: Overall of BLD16-03GT during bentonite hole abandonement.

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000007

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/11/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:15	**Hours:** 11.75
Temperature (°F): 70	**Precipitation:** Dry	**Wind:** Light Wind

Field Professional - Observation

Activity Hours: 11.75

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log in at the mailbox due to the office being closed for the weekend.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-05GT, which was advanced to 36.5 feet below surface grades where refusal was encountered on very dense ore. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample. I used a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. I then proceeded to show the drillers the location of the next four boring locations. The drillers mobilized to the BLD16-15AL location, and set everything up to resume here tomorrow.

I then returned to the Monsanto mine office, signed out, traveled back to Soda Springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000005

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/11/2016

Description:
Photo 1: Overall of BLD16-05GT after completion.

Description:
Photo 2: Typical ore sample obtained from BLD16-05GT.

Photographic Documentation

Report #: PL-000005

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 3: Overall of BLD16-03GT during bentonite hole abandonement.

Photographic Documentation

Report #: PL-000005

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 4: Typical ore sample obtained from BLD16-05GT.

Description:
Photo 5: Typical silty gravel sample obtained from BLD16-05GT.

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000006

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/12/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:30	**Hours:** 12
Temperature (°F): 70	**Precipitation:** Dry	**Wind:** Light Wind

Field Professional - Observation

Activity Hours: 12.00

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log in at the mailbox due to the office being closed for the weekend.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-15AL, which was advanced to 51.5 feet below surface grades at design depths. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample. I used a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. I then proceeded to show the drillers the location of the next four boring location. The drillers mobilized to the BLD16-06GT location, and set everything up to resume here tomorrow.

I then returned to the Monsanto mine office, signed out, traveled back to Soda Springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000004

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/12/2016

Description:
Photo 1: Typical poorly graded gravel with silt and sand sample obtained from BLD16-05GT.

Description:
Photo 2: Typical poorly graded gravel with silt and sand sample obtained from BLD16-05GT

Photographic Documentation

Report #: PL-000004

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 3: Overall of BLD16-15AL after completion.

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000008

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/13/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:30	**Hours:** 12
Temperature (°F): 70	**Precipitation:** Rain	**Wind:** Light Wind

Field Professional - Observation

Activity Hours: 12.00

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-06GT and BLD16-13AL, which were advanced to 26.5 feet and 30.5 feet below surface grades where ODEX refusal was encountered. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample. I used a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. I then proceeded to show the drillers the location of the next four boring location. The drillers mobilized to the BLD16-09GT location, and set everything up to resume here tomorrow.

I then returned to the Monsanto mine office, spoke with Chris Leatherman regarding todays progress as well as the confirmation of the schedule changing to a 14 on/7 off rotation. I then signed out, traveled back to Soda Springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000006

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/13/2016

Description:
Photo 1: Typical poorly graded gravel with clay sample obtained from boring BLD16-06GT.

Description:
Photo 2: Overall boring location after completion of BLD16-06GT.

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 3: Typical poorly graded gravel with silt and sand sample obtained from boring BLD16-13AL.

Description:
Photo 4: Typical poorly graded gravel with silt and sand sample obtained from boring BLD16-13AL.

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 5: Typical material transition in sample obtained from boring BLD16-13AL.

Description:

Photo 6: Sample obtained from boring BLD16-13AL resulting in ODEX refusal.

Photographic Documentation

Report #: PL-000006

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 7: Drill rig (Delta Base 95G - ODEX) being used for exploration activites.

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000009

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/14/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:45	**Hours:** 12.25
Temperature (°F): 70	**Precipitation:** Rain	**Wind:** Light Wind

Field Professional - Observation

Activity Hours: 12.25

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log.

I then resumed observation of the drilling activities. We partially completed the drilling of BLD16-10GT, which was advanced to 71.5 feet and below surface grade prior to the end of the day. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample. I used a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. A brief standby was taken from approximately 1pm to 2pm due to near by lightning. Finally, I proceeded to unload my samples obtained from today.

I then returned to the Monsanto mine office, signed out, traveled back to Soda Springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000007

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/14/2016

Description:
Photo 1: Overall site photograph of BLD16-13AL after completion.

Description:
Photo 2: BLD16-13AL after completion of bentonite backfill and concrete capping.

Photographic Documentation

Report #: PL-000007

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 3: Typical fill sample obtained from BLD16-10GT.

Description:

Photo 4: Typical fill sample obtained from BLD16-10GT.

Photographic Documentation

Report #: PL-000007

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 5: Typical sample obtained from BLD16-10GT.

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000010

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/15/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:00	**Hours:** 11.5
Temperature (°F): 70	**Precipitation:** Dry	**Wind:** Breezy

Field Professional - Observation

Activity Hours: 11.50

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-10GT, which was advanced an additional 25 feet to a final depth of 96.5 feet below surface grade. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample. I used a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. Finally, I proceeded to unload my samples obtained from today.

I then returned to the Monsanto mine office where I spoke with David and Chris regarding today's activities, progress thus far, and plans for moving forward. I then signed out, traveled back to the Pocatello office, resupplied for resuming drilling on Tuesday, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000008

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/15/2016

Description:
Photo 1: Overall of BLD16-10GT after completion.

Description:
Photo 2: Typical poorly graded gravel with clay and sand sample obtained from BLD16-10GT.

Photographic Documentation

Report #: PL-000008

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 3: Typical Dinwoody sample obtained from BLD16-10GT.

Description:
Photo 4: Organic content in sample obtained from BLD16-10GT from 85-86.5 feet.

Daily Field Report

Report #: CDFA-000011

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/20/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 19:00	**Hours:** 12.5
Temperature (°F): 70	**Precipitation:** Dry	**Wind:** Breezy

Field Professional - Observation

Activity Hours: 12.50

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-08GT and BLD16-11GT , which were advanced to termination depths of 66.5 feet and 26.5 below surface grades where refusal was encountered. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample, or fill soils eliminated the need. I used a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. Finally, I proceeded to unload my samples obtained from today.

I then returned to the Monsanto mine office and signed out. I then traveled back to the soda springs, resupplied on distilled water from the local grocery store, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000009

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/20/2016

Description:
Photo 1: Material transition in modified california sample obtained from BLD16-08GT

Description:
Photo 2: Material transition in modified california sample obtained from BLD16-08GT

Photographic Documentation

Report #: PL-000009

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 3: Weathered dinwoody in modified california sample obtained from BLD16-08GT

Description:

Photo 4: Overall location of BLD16-08GT after completion

Photographic Documentation

Report #: PL-000009

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 5: Typical sample obtained from BLD16-11GT

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000012

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/21/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:15	**Hours:** 11.75
Temperature (°F): 73	**Precipitation:** Dry	**Wind:** Breezy

Field Professional - Observation

Activity Hours: 11.75

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-09GT and partially completed BLD16-07GT, which were advanced to a refusal termination depth of 36.5 feet and a partially completed depth of 26.5 feet below surface grades respectively. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample, or fill soils eliminated the need. I used a 2.5 inch inside diameter modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. Finally, I proceeded to unload my samples obtained from today.

I then returned to the Monsanto mine office and signed out. I then traveled back to the soda springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000010

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/21/2016

Description:
Photo 1: Overall of BLD16-11GT after completion

Description:
Photo 2: Overall of BLD16-09GT after completion

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 3: Typical sample obtained via modified california from BLD16-09GT

Description:

Photo 4: Typical poorly graded gravel with clay sample obtained via modified california from BLD16-09GT

Photographic Documentation

Report #: PL-000010

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 5: Typical lean clay sample obtained via modified california from BLD16-09GT

Description:
Photo 6: Typical Dinwoody sample obtained via modified california from BLD16-09GT

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 7: Typical sandy silt with gravel sample obtained via modified california from BLD16-07GT

Description:

Photo 8: Typical weathered Dinwoody sample obtained via modified california from BLD16- 07GT

Photographic Documentation

Report #: PL-000010

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 9: Typical weathered Dinwoody sample obtained via modified california from BLD16- 07GT

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000013

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/22/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:30	**Hours:** 12
Temperature (°F): 73	**Precipitation:** Rain	**Wind:** Breezy

Field Professional - Observation

Activity Hours: 12.00

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-07GT and partially completed BLD16-12GT, which were advanced to a refusal termination depth of 36.5 feet and a partially completed depth of 26.5 feet below surface grades respectively. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample, or fill soils eliminated the need. I used a 2.5 inch inside diameter Modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. Due to equipment malfunctions, we were temporarily shut down for repairs from approximately 11:00 AM to 1:30 PM.
I then proceeded to the mine office for a 4:00 PM conference call discussing the logistics for the upcoming Caldwell drilling. The conference call included myself and Mitch Quick with STRATA, Kyle and Howard with Ruen Drilling, Chris Leatherman with Monsanto, and Alex and Jane with Geosyntec.

I then signed out of the visitors log, traveled back to the soda springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000011

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/22/2016

Description:
Photo 1: Overall of BLD16-07GT after completion

Description:
Photo 2: Visable material (sandy silt with gravel) strata in sidewalls of cut for drill pad BLD16-12GT.

Photographic Documentation

Report #: PL-000011

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 3: Typical (sandy silt with gravel) sample obtained from BLD16-12GT.

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000014

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/23/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 18:30	**Hours:** 12
Temperature (°F): 45	**Precipitation:** Rain	**Wind:** Breezy

Field Professional - Observation

Activity Hours: 12.00

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-12GT and partially completed BLD16-14AL, which were advanced to a refusal termination depth of 36.5 feet and a partially completed depth of 45 feet below surface grades, respectively. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample or fill soils eliminated the need. I used a 2.5 inch inside diameter Modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. Due to high plasticity of the clay encountered at BLD16-14AL, the drill casing was repeatedly clogged during drilling, significantly slowing our progress.

I then proceeded back to the Monsanto mine office, signed out on the visitors log, traveled back to the Soda Springs, and wrote this report.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000012

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/23/2016

Description:
Photo 1: Overall of BLD16-12GT after completion.

Description:
Photo 2: Overall of BLD16-12GT access road during/after rain.

Photographic Documentation

Report #: PL-000012

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:
Photo 3: Drilling of typical dinwoody encountered at BLD16-12GT.

Photographic Documentation

Report #: PL-000012

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 4: Typical sandy silt with gravel encountered at BLD16-14AL.

Description:

Photo 5: Typical sandy lean clay with gravel encountered at BLD16-14AL.

Photographic Documentation

Report #: PL-000012

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 6: Typical sandy lean clay encountered at BLD16-14AL.

Mitch Quick
Project Engineer

Daily Field Report

Report #: CDFA-000015

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY	**Service Date:** 09/24/2016	**Mileage / Vehicle:** 0.0
Start Time: 06:30	**Finish Time:** 12:30	**Hours:** 6
Temperature (°F): 35	**Precipitation:** Snow	**Wind:** Breezy

Field Professional - Observation

Activity Hours: 6.00

Ref Plans / Specifications: Ballard Mine Cover Material Exploration Work Plan, STRATA Geotechnical Oversite Services Proposal **Rev. No.:** 2

Narrative: I loaded the necessary equipment needed for today's activities into my truck, and traveled to the Monsanto mine office, located just north of Soda Springs, Idaho. Upon arrival, I signed in on the visitor's log.

I then resumed observation of the drilling activities. We completed the drilling of BLD16-14AL, which was advanced to a design termination depth of 51.5 feet below surface grades. Samples were collected at 1.5 feet, 5 feet, and at 5 foot intervals thereafter unless a soil transition required an intermediate sample or fill soils eliminated the need. I used a 2.5 inch inside diameter Modified California split spoon sampler. Additionally, the soil cuttings were obtained at all intervals between the split spoon samples. It should again be noted that only approximately 1/2 to 3/4 gallon of material was obtainable during the collection of the sample cuttings. Chip tray samples were also obtained for each of the samples. Due to high plasticity of the clay encountered at BLD16-14AL, the drill casing was repeatedly clogged during drilling, significantly slowing our progress.
I then proceeded to unload samples, and travel back to the Monsanto mine office. This completed the drilling for the Ballard mine site.

I then wrote this report, and proceeded to the Caldwell Mine Site.

Noted Deviations: No

Reported to: Chris Leatherman and David Carpenter, of Monsanto, Leah Wolf Martin of MWH

Mitch Quick
Project Engineer

Photographic Documentation

Report #: PL-000013

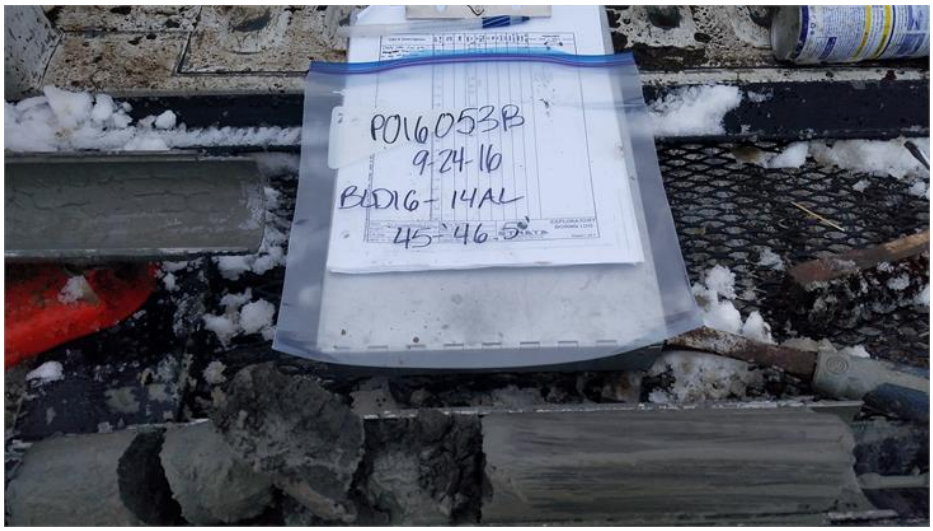
Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:
Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:
PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

STRATA Representative: BENEDETTI, ROCKY

Date: 09/24/2016



Description:
Photo 1: Typical lean clay sample obtained from BLD16-14AL.

Description:
Photo 2: Typical poorly graded gravel with clay and sand sample obtained from BLD16-14AL.

Photographic Documentation

Report #: PL-000013

Pocatello
2815 Garrett Way, Ste. C
Pocatello, ID 83201
Phone: 208.237.3400
Fax: 208.237.3449

Client:

Monsanto Company - Pocatello
Accounts Payable; P.O. Box 419095
Saint Louis, MO 63141-9095

Project:

PO16053B
Ballard Mine Geotechnical Exploration
soda springs, ID

Description:

Photo 3: Overall of BLD16-14AL after completion.

Mitch Quick
Project Engineer

APPENDIX C

GEOCHEMICAL AND AGRONOMIC LABORATORY REPORTS

ACZ Laboratories

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

January 20, 2017

Report to:
Molly Prickett
Monsanto Company
1853 Hwy 34 N
Soda Springs, ID 83276

Bill to:
Molly Pricket
Monsanto Company
1853 Highway 34
Soda Springs, ID 83276

cc: Leah Wolf Martin, Rocky Benedetti

Project ID: 4512184569
ACZ Project ID: L34445

Molly Prickett:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 06, 2016. This project has been assigned to ACZ's project number, L34445. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L34445. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after February 19, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

MONSANTO COMPANY

Level IV Data Package – L34445
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        iii. Matrix/Analytical Spike Recoveries
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ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Summary

ACZ Project ID: ***L34445***

SAMPLE ID	LAB NO.	SAMPLE DATE	SAMPLE TIME
TP-6_7_9 (2-5)	L34445-01	8/24/2016	0:00
TP-12 (2-4)	L34445-02	8/25/2016	0:00
TP-15_16 (2-13)	L34445-03	8/25/2016	0:00
TP-20 (1-4)	L34445-04	8/25/2016	0:00

Monsanto Company

January 20, 2017

Project ID: 4512184569
ACZ Project ID: L34445

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 4 soil samples from Monsanto Company on December 6, 2016. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L34445. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures.

Monsanto Company
Project ID: 4512184569
Sample ID: TP-6_7_9 (2-5)

ACZ Sample ID: ***L34445-01***
Date Sampled: *08/24/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	8.6			mg/Kg	0.1	0.5	01/10/17 20:08	msh
Boron, soluble (Hot Water)	M6010B ICP	5		U	*	mg/Kg	0.05	0.3	01/11/17 16:28	gss
Cadmium, total (3050)	M6020 ICP-MS	505	14.8			mg/Kg	0.05	0.3	01/10/17 20:08	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	0.915			meq/L	0.005	0.025	01/11/17 10:23	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	18.6		*	meq/100g	0.435	2.18	01/18/17 11:17	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.529			meq/L	0.017	0.082	01/11/17 10:23	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	4.0			mg/Kg	0.3	1	01/10/17 20:08	msh
Phosphorus, total (3050)	M6010B ICP	505	9100		*	mg/Kg	50	300	01/16/17 17:13	aeb
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.105			meq/L	0.0051	0.0256	01/11/17 10:23	aeb
Selenium, total (3050)	M6020 ICP-MS	505	2.14		*	mg/Kg	0.05	0.1	01/10/17 20:08	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.145			meq/L	0.0087	0.0435	01/11/17 10:23	aeb
Uranium, total (3050)	M6020 ICP-MS	505	11.2			mg/Kg	0.05	0.3	01/10/17 20:08	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.3		*	%	0.1	0.5	01/17/17 9:00	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.1		*	%	0.1	0.5	01/17/17 9:00	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.164		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	19.9		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	2.4		*	%	0.3	1	01/17/17 15:50	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	6.7		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	49.8		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	88.3		*	%	0.1	0.5	12/29/16 19:57	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 11:16	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-6_7_9 (2-5)

ACZ Sample ID: ***L34445-01***
Date Sampled: *08/24/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 13:22	brd
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 9:14	bcc
Digestion - Hot Plate	M3050B ICP								01/07/17 9:41	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/07/17 9:41	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 11:46	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 11:46	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:15	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 11:00	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 11:00	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:02	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:02	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	1	B	*	mg/Kg	1	5	01/10/17 12:42	spl

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: TP-12 (2-4)

ACZ Sample ID: ***L34445-02***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	6.8			mg/Kg	0.1	0.5	01/10/17 20:10	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.25	B	*	mg/Kg	0.05	0.3	01/11/17 16:34	gss
Cadmium, total (3050)	M6020 ICP-MS	505	0.86			mg/Kg	0.05	0.3	01/10/17 20:10	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	3.01			meq/L	0.005	0.025	01/11/17 10:26	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	21.9		*	meq/100g	0.435	2.18	01/18/17 11:23	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.279			meq/L	0.017	0.082	01/11/17 10:26	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	0.4	B		mg/Kg	0.3	1	01/10/17 20:10	msh
Phosphorus, total (3050)	M6010B ICP	101	1200		*	mg/Kg	10	50	01/16/17 15:00	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.0843			meq/L	0.0051	0.0256	01/11/17 10:26	aeb
Selenium, total (3050)	M6020 ICP-MS	505	0.24		*	mg/Kg	0.05	0.1	01/10/17 20:10	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.104			meq/L	0.0087	0.0435	01/11/17 10:26	aeb
Uranium, total (3050)	M6020 ICP-MS	505	0.68			mg/Kg	0.05	0.3	01/10/17 20:10	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	2.9		*	%	0.1	0.5	01/17/17 15:31	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.2		*	%	0.1	0.5	01/17/17 15:31	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.364		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	19.7		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	3.0		*	%	0.3	1	01/17/17 18:10	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	7.5		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	52.1		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	91.4		*	%	0.1	0.5	12/29/16 21:14	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 12:26	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-12 (2-4)

ACZ Sample ID: ***L34445-02***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 15:56	brd
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 10:12	bcc
Digestion - Hot Plate	M3050B ICP								01/07/17 14:25	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/07/17 14:25	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 12:20	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 12:18	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:17	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 12:05	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 12:05	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		3	B		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10	3	B	*	mg/Kg	2	5	01/10/17 21:05	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:05	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	1	B	*	mg/Kg	1	5	01/10/17 12:45	spl

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: TP-15_16 (2-13)

ACZ Sample ID: ***L34445-03***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	7.1			mg/Kg	0.1	0.5	01/10/17 20:12	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.08	B	*	mg/Kg	0.05	0.3	01/11/17 16:37	gss
Cadmium, total (3050)	M6020 ICP-MS	505	4.22			mg/Kg	0.05	0.3	01/10/17 20:12	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	0.886			meq/L	0.005	0.025	01/11/17 10:29	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	15.3		*	meq/100g	0.435	2.18	01/18/17 11:27	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.568			meq/L	0.017	0.082	01/11/17 10:29	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	2.5			mg/Kg	0.3	1	01/10/17 20:12	msh
Phosphorus, total (3050)	M6010B ICP	101	4540		*	mg/Kg	10	50	01/16/17 15:06	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.161			meq/L	0.0051	0.0256	01/11/17 10:29	aeb
Selenium, total (3050)	M6020 ICP-MS	505	3.44		*	mg/Kg	0.05	0.1	01/10/17 20:12	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.234			meq/L	0.0087	0.0435	01/11/17 10:29	aeb
Uranium, total (3050)	M6020 ICP-MS	505	5.87			mg/Kg	0.05	0.3	01/10/17 20:12	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.7		*	%	0.1	0.5	01/17/17 18:47	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.6		*	%	0.1	0.5	01/17/17 18:47	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.181		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	19.5		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	1.2		*	%	0.3	1	01/17/17 19:20	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	7.0		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	44.1		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	85.8		*	%	0.1	0.5	12/29/16 22:31	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	0.01	B	*	%	0.01	0.1	01/18/17 12:50	cra

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-15_16 (2-13)

ACZ Sample ID: ***L34445-03***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 18:31	brd
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 10:41	bcc
Digestion - Hot Plate	M3050B ICP								01/07/17 19:09	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/07/17 19:09	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 12:37	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 12:35	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:19	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 13:10	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 13:10	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:07	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:07	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10		U	*	mg/Kg	1	5	01/10/17 12:47	spl

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-20 (1-4)

ACZ Sample ID: ***L34445-04***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	8.9			mg/Kg	0.1	0.5	01/10/17 20:14	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.10	B	*	mg/Kg	0.05	0.3	01/11/17 16:41	gss
Cadmium, total (3050)	M6020 ICP-MS	510	12.3			mg/Kg	0.05	0.3	01/10/17 20:14	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	0.702			meq/L	0.005	0.025	01/11/17 10:32	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	17.4		*	meq/100g	0.435	2.18	01/18/17 11:30	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.655			meq/L	0.017	0.082	01/11/17 10:32	aeb
Molybdenum, total (3050)	M6020 ICP-MS	510	6.2			mg/Kg	0.3	1	01/10/17 20:14	msh
Phosphorus, total (3050)	M6010B ICP	510	10700		*	mg/Kg	50	300	01/16/17 17:20	aeb
Phosphorus, total (3050)	M6010B ICP	510	10900		*	mg/Kg	50	300	01/16/17 15:10	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.198			meq/L	0.0051	0.0256	01/11/17 10:32	aeb
Selenium, total (3050)	M6020 ICP-MS	510	4.22		*	mg/Kg	0.05	0.1	01/10/17 20:14	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.0878			meq/L	0.0087	0.0435	01/11/17 10:32	aeb
Uranium, total (3050)	M6020 ICP-MS	510	11.7			mg/Kg	0.05	0.3	01/10/17 20:14	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.5		*	%	0.1	0.5	01/17/17 22:03	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.3		*	%	0.1	0.5	01/17/17 22:03	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.125		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	19.9		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	2.9		*	%	0.3	1	01/17/17 20:30	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	7.0		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	50.3		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	91.3		*	%	0.1	0.5	12/29/16 23:48	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	0.03	B	*	%	0.01	0.1	01/18/17 13:13	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-20 (1-4)

ACZ Sample ID: ***L34445-04***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 21:06	brd
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 11:10	bcc
Digestion - Hot Plate	M3050B ICP								01/07/17 23:54	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/07/17 23:54	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 12:54	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 12:51	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:21	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 14:16	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 14:16	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:09	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:09	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10		U	*	mg/Kg	1	5	01/10/17 12:49	spl

** Please refer to Qualifier Reports for details.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Monsanto Company

ACZ Project ID: ***L34445***

Arsenic, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.05		.04876	mg/L	98	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0006	0.0006			
WG415985ICSA	ICSA	01/10/17 19:56				U	mg/L		-0.001	0.001			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	.02004		.02141	mg/L	107	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.3	0.3			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	145		137.1	mg/Kg		115	176			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	145		143.7	mg/Kg		115	176	5	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.1002		.10333	mg/L	103	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0006	0.0006			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	25.551	12	40.12	mg/Kg	110	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	25.551	12	41.91	mg/Kg	117	75	125	4	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.1002		.10098	mg/L	101	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0006	0.0006			
L34446-09SDL	SDL	01/10/17 20:46			7.3	7.1	mg/Kg				3	10	
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.1002		.10462	mg/L	104	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0006	0.0006			

Boron, soluble (Hot Water) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416030													
WG416030ICV	ICV	01/11/17 16:09	II161209-1	2		1.985	mg/L	99	90	110			
WG416030ICB	ICB	01/11/17 16:12				U	mg/L		-0.03	0.03			
WG416030PQV	PQV	01/11/17 16:15	II161228-3	.05005		.055	mg/L	110	70	130			
WG416030ICSAB	ICSAB	01/11/17 16:18	II161031-5	.5005		.478	mg/L	96	80	120			
WG415942PBS	PBS	01/11/17 16:25				U	mg/Kg		-0.15	0.15			
L34445-01DUP	DUP	01/11/17 16:31			U	.057	mg/Kg				200	20	RA
L34674-01AS	AS	01/11/17 16:47	II170109-2	2.5025	.18	2.605	mg/Kg	97	75	125			
L34674-01ASD	ASD	01/11/17 16:50	II170109-2	2.5025	.18	2.658	mg/Kg	99	75	125	2	20	
WG416030CCV1	CCV	01/11/17 16:57	II161227-1	1		1.017	mg/L	102	90	110			
WG416030CCB1	CCB	01/11/17 17:00				U	mg/L		-0.03	0.03			
L34674-04SDL	SDL	01/11/17 17:09			U	U	mg/Kg					10	
WG416030CCV2	CCV	01/11/17 17:35	II161227-1	1		.974	mg/L	97	90	110			
WG416030CCB2	CCB	01/11/17 17:38				U	mg/L		-0.03	0.03			

Monsanto Company

ACZ Project ID: ***L34445***

Cadmium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.05		.05049	mg/L	101	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0003	0.0003			
WG415985ICSA	ICSA	01/10/17 19:56				U	mg/L		-0.0005	0.0005			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	.02002		.01946	mg/L	97	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.15	0.15			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	87.6		85.89	mg/Kg		72.4	103			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	87.6		85.63	mg/Kg		72.4	103	0	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.1001		.0982	mg/L	98	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0003	0.0003			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	25.5255	.73	26.658	mg/Kg	102	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	25.5255	.73	27.617	mg/Kg	105	75	125	4	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.1001		.09784	mg/L	98	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0003	0.0003			
L34446-09SDL	SDL	01/10/17 20:46			1.41	1.36	mg/Kg				4	10	
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.1001		.10011	mg/L	100	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0003	0.0003			

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416011													
WG416011ICV	ICV	01/11/17 10:07	II161209-1	100		99.4	mg/L	99	90	110			
WG416011ICB	ICB	01/11/17 10:10				U	mg/L		-0.3	0.3			
WG416011PQV	PQV	01/11/17 10:13	II161228-3	0.5		.482	mg/L	96	70	130			
WG416011ICSAB	ICSAB	01/11/17 10:17	II161031-5	250		238	mg/L	95	80	120			
L34445-04DUP	DUP	01/11/17 10:36			0.702	.735	meq/L				5	20	
WG416011CCV1	CCV	01/11/17 10:55	II161227-1	50		49.4	mg/L	99	90	110			
WG416011CCB1	CCB	01/11/17 10:58				U	mg/L		-0.3	0.3			
WG416011CCV2	CCV	01/11/17 11:20	II161227-1	50		50	mg/L	100	90	110			
WG416011CCB2	CCB	01/11/17 11:23				U	mg/L		-0.3	0.3			

Carbon, total (TC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416304													
L34445-01DUP	DUP	01/17/17 12:15			1.3	1.3	%				0	20	
WG416304LCSS	LCSS	01/19/17 13:14	PCN52724	3.75		3.7	%		80	120			
WG416304PBS	PBS	01/19/17 16:30				U	%		-0.3	0.3			

Carbon, total organic (TOC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416304													
L34445-01DUP	DUP	01/17/17 12:15			1.1	1.1	%				0	20	
WG416304PBS	PBS	01/19/17 16:30				U	%		-0.3	0.3			

Monsanto Company

ACZ Project ID: ***L34445***

Cation Exchange Capacity (CEC) USDA No. 60 (19)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416336													
WG416336ICV	ICV	01/18/17 10:58	II170112-1	100		100	mg/L	100	90	110			
WG416336ICB	ICB	01/18/17 11:01				U	mg/L		-0.6	0.6			
WG416336PQV	PQV	01/18/17 11:04	II161228-3	1		1.08	mg/L	108	70	130			
WG416336ICSAB	ICSAB	01/18/17 11:07	II161031-5	25		25.8	mg/L	103	80	120			
WG416214PBS	PBS	01/18/17 11:14				U	meq/100g		-1.31	1.31			
L34445-01DUP	DUP	01/18/17 11:20			18.6	20.1	meq/100g				8	20	
L34674-01AS	AS	01/18/17 11:36	IICECSPIKE	218	20.1	232	meq/100g	97	75	125			
L34674-01ASD	ASD	01/18/17 11:39	IICECSPIKE	218	20.1	232	meq/100g	97	75	125	0	20	
WG416336CCV1	CCV	01/18/17 11:46	II161227-1	50		51.9	mg/L	104	90	110			
WG416336CCB1	CCB	01/18/17 11:49				U	mg/L		-0.6	0.6			
L34674-04SDL	SDL	01/18/17 11:58			17.1	3.5	meq/100g				2	10	
WG416336CCV2	CCV	01/18/17 12:24	II161227-1	50		51.8	mg/L	104	90	110			
WG416336CCB2	CCB	01/18/17 12:27				U	mg/L		-0.6	0.6			

Conductivity @25C SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415921													
L34445-04DUP	DUP	01/10/17 13:21			.125	.123	mmhos/cm				2	20	

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416011													
WG416011ICV	ICV	01/11/17 10:07	II161209-1	100		99.3	mg/L	99	90	110			
WG416011ICB	ICB	01/11/17 10:10				U	mg/L		-0.6	0.6			
WG416011PQV	PQV	01/11/17 10:13	II161228-3	1		1	mg/L	100	70	130			
WG416011ICSAB	ICSAB	01/11/17 10:17	II161031-5	250		246	mg/L	98	80	120			
L34445-04DUP	DUP	01/11/17 10:36			0.655	.677	meq/L				3	20	
WG416011CCV1	CCV	01/11/17 10:55	II161227-1	50		49.5	mg/L	99	90	110			
WG416011CCB1	CCB	01/11/17 10:58				U	mg/L		-0.6	0.6			
WG416011CCV2	CCV	01/11/17 11:20	II161227-1	50		49.7	mg/L	99	90	110			
WG416011CCB2	CCB	01/11/17 11:23				U	mg/L		-0.6	0.6			

Monsanto Company

ACZ Project ID: ***L34445***

Molybdenum, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.01998		.01938	mg/L	97	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0015	0.0015			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	1.02502		1.00956	mg/L	98	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.9	0.9			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	116		116.2	mg/Kg		91.5	141			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	116		116.3	mg/Kg		91.5	141	0	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.1001		.10127	mg/L	101	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0015	0.0015			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	25.4745	1.1	24.5	mg/Kg	92	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	25.4745	1.1	25.69	mg/Kg	97	75	125	5	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.1001		.1	mg/L	100	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0015	0.0015			
L34446-09SDL	SDL	01/10/17 20:46			.9	U	mg/Kg					10	
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.1001		.10096	mg/L	101	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0015	0.0015			

Nitrate/Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415988													
WG415988ICV	ICV	01/10/17 20:55	WI161209-3	2.416		2.33	mg/L	96	90	110			
WG415988ICB	ICB	01/10/17 20:56				U	mg/L		-0.2	0.2			
WG415988LFB	LFB	01/10/17 21:00	WI170104-22	2		2	mg/L	100	90	110			
WG415879PBS	PBS	01/10/17 21:01				U	mg/Kg		-2	2			
L34445-01DUP	DUP	01/10/17 21:04			U	U	mg/Kg				0	20	RA
L34445-02AS	AS	01/10/17 21:06	WI170104-22	20	3	23	mg/Kg	100	90	110			
WG415988CCV1	CCV	01/10/17 21:10	WI170104-24	2		1.95	mg/L	98	90	110			
WG415988CCB1	CCB	01/10/17 21:13				U	mg/L		-0.2	0.2			
WG415988CCV2	CCV	01/10/17 21:26	WI170104-24	2		1.94	mg/L	97	90	110			
WG415988CCB2	CCB	01/10/17 21:29				U	mg/L		-0.2	0.2			
WG415988CCV3	CCV	01/10/17 21:33	WI170104-24	2		1.94	mg/L	97	90	110			
WG415988CCB3	CCB	01/10/17 21:36				U	mg/L		-0.2	0.2			

Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415988													
WG415988ICV	ICV	01/10/17 20:55	WI161209-3	.609		.59	mg/L	97	90	110			
WG415988ICB	ICB	01/10/17 20:56				U	mg/L		-0.1	0.1			
WG415988LFB	LFB	01/10/17 21:00	WI170104-22	1		1.02	mg/L	102	90	110			
WG415879PBS	PBS	01/10/17 21:01				U	mg/Kg		-1	1			
L34445-01DUP	DUP	01/10/17 21:04			U	U	mg/Kg				0	20	RA
L34445-02AS	AS	01/10/17 21:06	WI170104-22	10	U	11.1	mg/Kg	111	90	110			M1
WG415988CCV1	CCV	01/10/17 21:10	WI170104-24	1		1	mg/L	100	90	110			
WG415988CCB1	CCB	01/10/17 21:13				U	mg/L		-0.1	0.1			
WG415988CCV2	CCV	01/10/17 21:26	WI170104-24	1		1	mg/L	100	90	110			
WG415988CCB2	CCB	01/10/17 21:29				U	mg/L		-0.1	0.1			
WG415988CCV3	CCV	01/10/17 21:33	WI170104-24	1		1.01	mg/L	101	90	110			
WG415988CCB3	CCB	01/10/17 21:36				U	mg/L		-0.1	0.1			

Monsanto Company

ACZ Project ID: ***L34445***

Nitrogen, ammonia (KCL) M350.1 Auto Salicylate w/gas diffusion

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415949													
WG415949ICV	ICV	01/10/17 12:36	WI170103-8	11.988		11.72	mg/L	98	90	110			
WG415949ICB	ICB	01/10/17 12:37				U	mg/L		-0.1	0.1			
WG415949LFB	LFB	01/10/17 12:39	WI161026-1	10		10.12	mg/L	101	90	110			
WG415879PBS	PBS	01/10/17 12:40				U	mg/Kg		-1	1			
L34445-01DUP	DUP	01/10/17 12:43			1	1.2	mg/Kg				18	20	RA
L34445-02AS	AS	01/10/17 12:46	WI161026-1	100	1	100.1	mg/Kg	99	75	125			
WG415949CCV1	CCV	01/10/17 12:53	WI161031-9	10		9.7	mg/L	97	90	110			
WG415949CCB1	CCB	01/10/17 12:55				U	mg/L		-0.1	0.1			
WG415949CCV2	CCV	01/10/17 13:10	WI161031-9	10		9.63	mg/L	96	90	110			
WG415949CCB2	CCB	01/10/17 13:12				U	mg/L		-0.1	0.1			
WG415949CCV3	CCV	01/10/17 13:18	WI161031-9	10		9.32	mg/L	93	90	110			
WG415949CCB3	CCB	01/10/17 13:19				U	mg/L		-0.1	0.1			

Organic Matter USDA No.60 - Method 24

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416430													
WG416430PBS	PBS	01/17/17 13:30				U	%		-0.3	0.3			
WG416430LCSS	LCSS	01/17/17 14:40	PCN45409	2		2	%	100	75	125			
L34445-01DUP	DUP	01/17/17 17:00			2.4	2.35	%				2	20	RA
WG416430CCB1	CCB	01/18/17 1:10				U	%		-0.3	0.3			
WG416430CCV1	CCV	01/18/17 2:20	PCN45434	2		2.1	%	105	90	110			
WG416430CCB2	CCB	01/18/17 12:50				U	%		-0.3	0.3			
WG416430CCV2	CCV	01/18/17 14:00	PCN45434	2		2.1	%	105	90	110			

pH, Saturated Paste EPA 600/2-78-054 section 3.2.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415921													
L34445-04DUP	DUP	01/10/17 13:21			7	7	units				0	20	
WG415921CCV1	CCV	01/11/17 3:55	PCN50759	4		4	units	100	3.9	4.1			
WG415921CCV2	CCV	01/11/17 5:08	PCN50759	4		4.1	units	103	3.9	4.1			
WG415921ICV	ICV	01/11/17 9:59	PCN50759	4		4	units	100	3.9	4.1			

Monsanto Company

ACZ Project ID: ***L34445***

Phosphorus, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416259													
WG416259ICV	ICV	01/16/17 14:32	II161203-1	5.003		5.11	mg/L	102	90	110			
WG416259ICB	ICB	01/16/17 14:35				U	mg/L		-0.3	0.3			
WG416259PQV	PQV	01/16/17 14:38	II161228-3	.4995		.49	mg/L	98	70	130			
WG416259ICSAB	ICSAB	01/16/17 14:41	II161206-1	4.995		4.86	mg/L	97	80	120			
WG415785PBS	PBS	01/16/17 14:48				U	mg/Kg		-30	30			
WG415785LCSS2	LCSS	01/16/17 14:51	PCN52708	842		693	mg/Kg		673.6	1010.4			
WG415785LCSSD2	LCSSD	01/16/17 14:54	PCN52708	842		696	mg/Kg		673.6	1010.4	0	20	
L34445-02SDL	SDL	01/16/17 15:03			1200	1270	mg/Kg				6	10	
L34445-04MS	MS	01/16/17 15:13	II170109-2	509.49	10900	11337	mg/Kg	86	75	125			
L34445-04MSD	MSD	01/16/17 15:16	II170109-2	509.49	10900	11036	mg/Kg	27	75	125	3	20	M3
WG416259CCV	CCV	01/16/17 15:19	II161221-2	2.5015		2.62	mg/L	105	90	110			
WG416259CCB	CCB	01/16/17 15:22				U	mg/L		-0.3	0.3			
WG416282													
WG416282ICV	ICV	01/16/17 16:48	II161203-1	5.003		5.07	mg/L	101	90	110			
WG416282ICB	ICB	01/16/17 16:51				U	mg/L		-0.3	0.3			
WG416282PQV	PQV	01/16/17 16:54	II161228-3	.4995		.52	mg/L	104	70	130			
WG416282ICSAB	ICSAB	01/16/17 16:58	II161206-1	4.995		4.9	mg/L	98	80	120			
WG415785PBS	PBS	01/16/17 17:04				U	mg/Kg		-30	30			
WG415785LCSS2	LCSS	01/16/17 17:07	PCN52708	842		683	mg/Kg		673.6	1010.4			
WG415785LCSSD2	LCSSD	01/16/17 17:10	PCN52708	842		690	mg/Kg		673.6	1010.4	1	20	
L34445-01SDL	SDL	01/16/17 17:16			9100	9575	mg/Kg				5	10	
L34445-04MS	MS	01/16/17 17:23	II5XSOIL	102.0204	10700	10863	mg/Kg	160	75	125			M3
L34445-04MSD	MSD	01/16/17 17:26	II5XSOIL	102.0204	10700	10715	mg/Kg	15	75	125	1	20	M3
WG416282CCV	CCV	01/16/17 17:29	II161221-2	2.5015		2.67	mg/L	107	90	110			
WG416282CCB	CCB	01/16/17 17:32				U	mg/L		-0.3	0.3			

Potassium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416011													
WG416011ICV	ICV	01/11/17 10:07	II161209-1	20		20	mg/L	100	90	110			
WG416011ICB	ICB	01/11/17 10:10				U	mg/L		-0.6	0.6			
WG416011PQV	PQV	01/11/17 10:13	II161228-3	1		1.03	mg/L	103	70	130			
WG416011ICSAB	ICSAB	01/11/17 10:17	II161031-5	25		24.7	mg/L	99	80	120			
L34445-04DUP	DUP	01/11/17 10:36			0.198	.195	meq/L				2	20	
WG416011CCV1	CCV	01/11/17 10:55	II161227-1	10		9.51	mg/L	95	90	110			
WG416011CCB1	CCB	01/11/17 10:58				U	mg/L		-0.6	0.6			
WG416011CCV2	CCV	01/11/17 11:20	II161227-1	10		9.72	mg/L	97	90	110			
WG416011CCB2	CCB	01/11/17 11:23				U	mg/L		-0.6	0.6			

Saturation Percent USDA No. 60 (2)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415921													
L34445-04DUP	DUP	01/10/17 13:21			50.3	51.79	%				3	20	

Monsanto Company

ACZ Project ID: ***L34445***

Selenium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.05		.05402	mg/L	108	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0003	0.0003			
WG415985ICSA	ICSA	01/10/17 19:56				U	mg/L		-0.0003	0.0003			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	.02002		.02144	mg/L	107	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.15	0.15			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	178		175.83	mg/Kg		140	216			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	178		180.83	mg/Kg		140	216	3	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.25025		.25409	mg/L	102	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0003	0.0003			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	12.76275	.84	14.225	mg/Kg	105	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	12.76275	.84	13.832	mg/Kg	102	75	125	3	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.25025		.24628	mg/L	98	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0003	0.0003			
L34446-09SDL	SDL	01/10/17 20:46			.58	.485	mg/Kg				16	10	ZG
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.25025		.25271	mg/L	101	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0003	0.0003			

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416011													
WG416011ICV	ICV	01/11/17 10:07	II161209-1	100		99.9	mg/L	100	90	110			
WG416011ICB	ICB	01/11/17 10:10				U	mg/L		-0.6	0.6			
WG416011PQV	PQV	01/11/17 10:13	II161228-3	1		1.08	mg/L	108	70	130			
WG416011ICSAB	ICSAB	01/11/17 10:17	II161031-5	25		25.3	mg/L	101	80	120			
L34445-04DUP	DUP	01/11/17 10:36			0.0878	.093	meq/L				6	20	
WG416011CCV1	CCV	01/11/17 10:55	II161227-1	50		49.4	mg/L	99	90	110			
WG416011CCB1	CCB	01/11/17 10:58				U	mg/L		-0.6	0.6			
WG416011CCV2	CCV	01/11/17 11:20	II161227-1	50		49.8	mg/L	100	90	110			
WG416011CCB2	CCB	01/11/17 11:23				U	mg/L		-0.6	0.6			

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415419													
WG415419PBS	PBS	12/29/16 11:00				U	%		-0.1	0.1			
L34305-01DUP	DUP	12/29/16 13:33			87.4	87.22	%				0	20	

Sulfur, total ASTM D-4239-85C, LECO Furnace

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416470													
WG416470PBS	PBS	01/18/17 10:30				U	%		-0.03	0.03			
WG416470LCSS	LCSS	01/18/17 10:53	PCN52722	3.82		3.5	%	92	80	120			
L34445-01MS	MS	01/18/17 11:40	PCN49456	1.33	U	1.24	%	93	80	120			
L34445-01DUP	DUP	01/18/17 12:03			U	.01	%				200	20	RA

Monsanto Company

ACZ Project ID: ***L34445***

Uranium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.05		.05266	mg/L	105	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0003	0.0003			
WG415985ICSA	ICSA	01/10/17 19:56				U	mg/L		-0.0005	0.0005			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	.02		.02211	mg/L	111	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.15	0.15			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	17.6		17.95	mg/Kg		14.2	20.9			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	17.6		17.55	mg/Kg		14.2	20.9	2	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.1		.10188	mg/L	102	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0003	0.0003			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	12.75	.59	15.231	mg/Kg	115	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	12.75	.59	15.762	mg/Kg	119	75	125	3	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.1		.10192	mg/L	102	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0003	0.0003			
L34446-09SDL	SDL	01/10/17 20:46			1.27	1.22	mg/Kg				4	10	
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.1		.10295	mg/L	103	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0003	0.0003			

Monsanto Company ACZ Project ID: ***L34445***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34445-01	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416282	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416304	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L34445***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34445-02	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416259	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416304	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L34445***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34445-03	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416259	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416304	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L34445***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34445-04	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416259	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG416282		M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416304	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Cation Exchange Capacity (CEC)	USDA No. 60 (19)

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	SM2510B
Organic Matter	USDA No.60 - Method 24
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2
Saturation Percent	USDA No. 60 (2)
Solids, Percent	D2216-80
Sulfur, total	ASTM D-4239-85C, LECO Furnace

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG415985

ACZ Laboratories, Inc

Instrument ID: ICPMS6
Analyst: MSL
ACZ Dept: 33
Create Date: 01/10/2017 17:28
Start Date/Time: 1-10-17
End Date/Time: 1-11-17

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 30 50	CD MS 30 50	MO MS 30 50	SE MS 30 50	U MS 30 50	Dilution
1	WG415985ICV	MS161128-3			1			✓	✓	✓	✓	✓	1
2	WG415985ICB	NONE			1			✓	✓	✓	✓	✓	1
3	WG415985ICSA	MS161201-9			1			✓	✓	✓	✓	✓	1
4	WG415985ICSAB	MS161201-10			1			✓	✓	✓	✓	✓	1
5	WG415985WASH	NONE			1			✓	✓	✓	✓	✓	1
6	WG415785PBS	NONE			100			✓	✓	✓	✓	✓	500
7	WG415785LCSS1	PCN52516			100			✓	✓	✓	✓	✓	5000
8	WG415785LCSSD1	PCN52516			100			✓	✓	✓	✓	✓	5000
9	L34445-01	TP-6_7_9 (2-5)			101			✓	✓	✓	✓	✓	505
10	L34445-02	TP-12 (2-4)			101			✓	✓	✓	✓	✓	505
11	L34445-03	TP-15_16 (2-13)			101			✓	✓	✓	✓	✓	505
12	L34445-04	TP-20 (1-4)			102			✓	✓	✓	✓	✓	510
13	WG415985CCV1	MS161201-14			1			✓	✓	✓	✓	✓	1
14	WG415985CCB1	NONE			1			✓	✓	✓	✓	✓	1
15	L34446-01	SB-01_02GT (1.5-6.5)			102			✓	✓		✓	✓	510
16	L34446-02	SB-07GT (4-21)			101			✓	✓		✓	✓	505
17	L34446-03	SB-03_TP-3 (1-5)			104			✓	✓		✓	✓	520
18	L34446-04	TP-6 (7-10)			102			✓	✓		✓	✓	510
19	L34446-05	TP-8 (3.5-13)			101			✓	✓		✓	✓	505
20	L34446-06	TP-9 (7-14)			101			✓	✓		✓	✓	505
21	L34446-07	TP-12 (7-9)			102			✓	✓		✓	✓	510
22	L34446-07MS	MS161205-2			102			✓	✓	✓	✓	✓	510

Report Comments: As/Se → 115

Internal Comments

AREV: MSL 1-11-17
Initials, Date

SREV: 1-18-17
Initials, Date

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG415985

ACZ Laboratories, Inc

Instrument ID: ICPMS6
Analyst:
ACZ Dept: 33
Create Date: 01/10/2017 17:28
Start Date/Time:
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 30 50	CD MS 30 50	MO MS 30 50	SE MS 30 50	U MS 30 50	Dilution
23	L34446-07MSD	MS161205-2			102			✓	✓	✓	✓	✓	510
24	L34446-08	TP-14 (3-7)			101			✓	✓		✓	✓	505
25	WG415985CCV2	MS161201-14			1			✓	✓	✓	✓	✓	1
26	WG415985CCB2	NONE			1			✓	✓	✓	✓	✓	1
27	L34446-09	TP-20 (12-14)			101			✓	✓		✓	✓	505
28	L34446-09SDL	NONE			1			✓	✓	✓	✓	✓	505
29	WG415985CCV3	MS161201-14			1			✓	✓	✓	✓	✓	1
30	WG415985CCB3	NONE			1			✓	✓	✓	✓	✓	1

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-07MS	ICPMS Spike
L34446-07MSD	ICPMS Spike
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L34445-1701201627

ACZ Laboratories, Inc.
ICPMS DATA REVIEW CHECKLIST

AREV: MM
Date: 1-11-17
SREV: [illegible]
Date: 1-12-17

Workgroup: WG415985
Sample Type: 3050
Analysis Date: 1-10-to 17
Analyst: MGM 1-11-17

	Yes	No	N/A
1) Is the instrument ID on the bench sheet correct?	✓		
2) Has a passing method tune been performed within 24 hours?	✓		
3) Was the low calibration point dropped? If yes, notify PM of change to PQLs.		✓	
4) Is the linear regression ≥ 0.995 for the analytes of interest?	✓		
5) Was the PQV standard analyzed & evaluated for DW samples ? (Fail in LIMS if no DW sxs in WG.)	✓		
6) Do the dilution factors on the benchsheet match the sequence in the raw data?	✓		
7) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?	✓		
8) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?	✓		
9) Are the % Recoveries of the internal standards within the method limits?	✓		
10) Are all of the QC critera listed in LIMS within specified limits?		✓	
11) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
12) Are all errors properly crossed out (i.e. single-line, dated & initialed)?	✓		
13) Is a current standard/reagent form attached to the workgroup?	✓		
14) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
695D1	Se = 16	ZG

ACZ Labs, Inc.
Standards/Reagents Information
ICPMS, Methods 6020 and 200.8

Calibration Standards

6020/200.8 Stock #1: MS161201-11 SCN
6020/200.8 Stock #2: MS161201-12 SCN
6020/200.8 Stock #3: MS161201-13 SCN

PQV STD: MS161201-7 SCN
Exp. 3/1/2017

INT STD: MS160923-1 SCN
Exp. 8/25/2017

Nitric Acid: 52053 PCN

Hydrochloric Acid: 51241 PCN

VERIFIED: MSH 1-11-17

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415985

Date Reported: 12-Jan-17
Run ID: R1491400
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: ICPMS6

WG415985ICV

Tag:

Measured: 1/10/2017 7:52:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.04876	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	98	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.05049	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	101	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.01938	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	97	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.05402	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	108	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.05266	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	105	1		%	++	0.0001	0.0005			

WG415985ICB

Tag:

Measured: 1/10/2017 7:54:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG415985ICSA

Tag:

Measured: 1/10/2017 7:56:19 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG415985ICSAB

Tag:

Measured: 1/10/2017 7:58:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.02141	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	107	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.01946	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	97	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	1.00956	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	98	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.02144	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	107	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.02211	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	111	1		%	++	0.0001	0.0005			

WG415785PBS

Tag: Measured: 1/10/2017 8:02:19 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		500	U	mg/Kg	++	0.1	0.5			
SREV	CADMIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND		500	U	mg/Kg	++	0.3	1			
SREV	SELENIUM	FOUND		500	U	mg/Kg	++	0.05	0.1			
SREV	URANIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			

WG415785LCSS1

Tag: Measured: 1/10/2017 8:04:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	137.1	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	95	5000		%	++	1	5			
SREV	CADMIUM	FOUND	85.89	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	98	5000		%	++	0.5	3			
SREV	MOLYBDENUM	FOUND	116.2	5000		mg/Kg	++	3	10			
SREV	MOLYBDENUM	REC	100	5000		%	++	3	10			
SREV	SELENIUM	FOUND	175.83	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	99	5000		%	++	0.5	1			
SREV	URANIUM	FOUND	17.95	5000		mg/Kg	++	0.5	3			
SREV	URANIUM	REC	102	5000		%	++	0.5	3			

WG415785LCSSD

Tag: Measured: 1/10/2017 8:06:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	143.7	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	99	5000		%	++	1	5			
SREV	ARSENIC	RPD	5	5000		%	++	1	5			
SREV	CADMIUM	FOUND	85.63	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	98	5000		%	++	0.5	3			
SREV	CADMIUM	RPD	0	5000		%	++	0.5	3			
SREV	MOLYBDENUM	FOUND	116.3	5000		mg/Kg	++	3	10			
SREV	MOLYBDENUM	REC	100	5000		%	++	3	10			
SREV	MOLYBDENUM	RPD	0	5000		%	++	3	10			
SREV	SELENIUM	FOUND	180.83	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	102	5000		%	++	0.5	1			
SREV	SELENIUM	RPD	3	5000		%	++	0.5	1			
SREV	URANIUM	FOUND	17.55	5000		mg/Kg	++	0.5	3			
SREV	URANIUM	REC	100	5000		%	++	0.5	3			
SREV	URANIUM	RPD	2	5000		%	++	0.5	3			

L34445-01

Tag: Measured: 1/10/2017 8:08:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	8.6	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	14.8	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	4.0	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	2.14	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	11.2	505		mg/Kg	++	0.05	0.3			

L34445-02

Tag: Measured: 1/10/2017 8:10:10 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.8	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.86	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	.4	505	B	mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	.24	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.68	505		mg/Kg	++	0.05	0.3			

L34445-03

Tag: Measured: 1/10/2017 8:12:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	7.1	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	4.22	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	2.5	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	3.44	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	5.87	505		mg/Kg	++	0.05	0.3			

L34445-04

Tag: Measured: 1/10/2017 8:14:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	8.9	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	12.3	510		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	6.2	510		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	4.22	510		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	11.7	510		mg/Kg	++	0.05	0.3			

WG415985CCV1

Tag: Measured: 1/10/2017 8:16:17 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10333	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	103	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.0982	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	98	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.10127	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	101	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.25409	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	102	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10188	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	102	1		%	++	0.0001	0.0005			

WG415985CCB1

Tag: Measured: 1/10/2017 8:18:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

L34446-01

Tag: Measured: 1/10/2017 8:20:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.2	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.65	510		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.18	510		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.91	510		mg/Kg	++	0.05	0.3			

L34446-02

Tag: Measured: 1/10/2017 8:22:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.4	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	3.57	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	6.58	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	3.96	505		mg/Kg	++	0.05	0.3			

L34446-03

Tag: Measured: 1/10/2017 8:24:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	5.5	520		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.91	520		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.35	520		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	1.02	520		mg/Kg	++	0.05	0.3			

L34446-04

Tag: Measured: 1/10/2017 8:26:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	19.0	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	18.5	510		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.89	510		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	7.02	510		mg/Kg	++	0.05	0.3			

L34446-05

Tag: Measured: 1/10/2017 8:28:17 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.7	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.53	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.43	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.68	505		mg/Kg	++	0.05	0.3			

L34446-06

Tag: Measured: 1/10/2017 8:30:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	3.9	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.51	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.45	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.52	505		mg/Kg	++	0.05	0.3			

L34446-07

Tag: Measured: 1/10/2017 8:32:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	12.0	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.73	510		mg/Kg	++	0.05	0.3			
NEED	MOLYBDENUM	REG	1.1	510		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	.84	510		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.59	510		mg/Kg	++	0.05	0.3			

L34446-07MS

Tag: Measured: 1/10/2017 8:34:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	40.12	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	110	510		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	26.658	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	102	510		%	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND	24.5	510		mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REC	92	510		%	++	0.3	1			
SREV	SELENIUM	FOUND	14.225	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	105	510		%	++	0.05	0.1			
SREV	URANIUM	FOUND	15.231	510		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REC	115	510		%	++	0.05	0.3			

L34446-07MSD

Tag: Measured: 1/10/2017 8:36:29 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	41.91	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	117	510		%	++	0.1	0.5			
SREV	ARSENIC	RPD	4	510		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	27.617	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	105	510		%	++	0.05	0.3			
SREV	CADMIUM	RPD	4	510		%	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND	25.69	510		mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REC	97	510		%	++	0.3	1			
SREV	MOLYBDENUM	RPD	5	510		%	++	0.3	1			
SREV	SELENIUM	FOUND	13.832	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	102	510		%	++	0.05	0.1			
SREV	SELENIUM	RPD	3	510		%	++	0.05	0.1			
SREV	URANIUM	FOUND	15.762	510		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REC	119	510		%	++	0.05	0.3			
SREV	URANIUM	RPD	3	510		%	++	0.05	0.3			

L34446-08

Tag: Measured: 1/10/2017 8:38:31 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.8	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.64	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.09	505	B	mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.58	505		mg/Kg	++	0.05	0.3			

WG415985CCV2

Tag: Measured: 1/10/2017 8:40:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10098	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.09784	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	98	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.1	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	100	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.24628	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	98	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10192	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	102	1		%	++	0.0001	0.0005			

WG415985CCB2

Tag: Measured: 1/10/2017 8:42:29 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

L34446-09

Tag: Measured: 1/10/2017 8:44:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	7.3	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	1.41	505		mg/Kg	++	0.05	0.3			
NEED	MOLYBDENUM	REG	.9	505	B	mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	.58	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	1.27	505		mg/Kg	++	0.05	0.3			

L34446-09SDL

Tag: Measured: 1/10/2017 8:46:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	D	3	505		%	++	0.1	0.5			
SREV	ARSENIC	FOUND	1.42	505		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REG	7.1	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	D	4	505		%	++	0.05	0.3			
SREV	CADMIUM	FOUND	0.272	505	B	mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REG	1.36	505	B	mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	D		505	U	%	++	0.3	1			
SREV	MOLYBDENUM	FOUND		505	U	mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REG	0	505	U	mg/Kg	++	0.3	1			
SREV	SELENIUM	D	16	505	B	%	ALRT	0.05	0.1		ZG	
SREV	SELENIUM	FOUND	0.097	505	B	mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REG	0.485	505	B	mg/Kg	++	0.05	0.1			
SREV	URANIUM	D	4	505		%	++	0.05	0.3			
SREV	URANIUM	FOUND	0.244	505	B	mg/Kg	++	0.05	0.3			
SREV	URANIUM	REG	1.22	505	B	mg/Kg	++	0.05	0.3			

WG415985CCV3

Tag: Measured: 1/10/2017 8:48:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10462	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	104	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.10011	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	100	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.10096	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	101	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.25271	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	101	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10295	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	103	1		%	++	0.0001	0.0005			

WG415985CCB3 **Tag:** **Measured:** **1/10/2017 8:50:23 PM**

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

US EPA 6020 Tune Check Sample Report

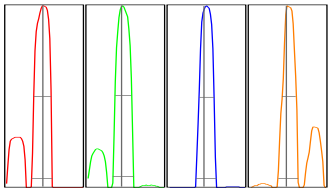
Batch Folder C:\Agilent\ICPMH\1\DATA\6020AMU-10_Jan_2017-10_39_41.b
Report Comment
Instrument Name G8403A JP16281462

[NoGas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	2551	0.90	5.00	
59	8721	0.50	5.00	
115	14628	0.30	5.00	
205	5584	0.60	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count
7	2528	2574	2550
59	8687	8707	8770
115	14676	14588	14621
205	5556	5576	5621

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	4074	7.00	6.9 - 7.1		0.782	0.900	
59	14529	58.90	58.9 - 59.1		0.783	0.900	
115	26490	114.95	114.9 - 115.1		0.771	0.900	
205	10691	205.00	204.9 - 205.1		0.771	0.900	

X% = 5 **Integration Time [sec] =** 0.1 **Acquisition Time [sec] =** 90.06 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

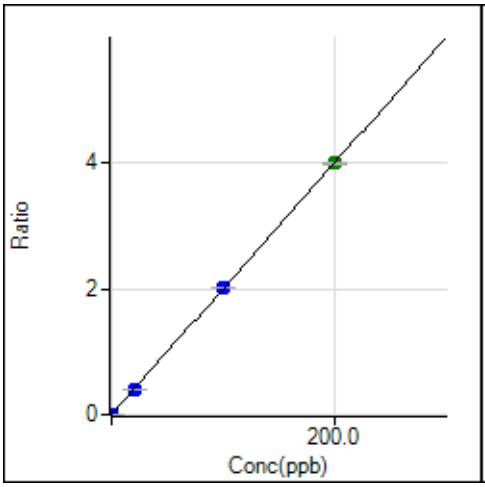
ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Carrier Gas	0.78	L/min	S/C Temp	2	°C
RF Matching	1.60	V	Option Gas	0.0	%	Gas Switch	Makeup Gas	
Smpl Depth	10.0	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas	0.22	L/min

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Omega Lens	9.4	V	Deflect	11.6	V
Extract 2	-140.0	V	Cell Entrance	-30	V	Plate Bias	-35	V
Omega Bias	-70	V	Cell Exit	-50	V			

Cell Parameters

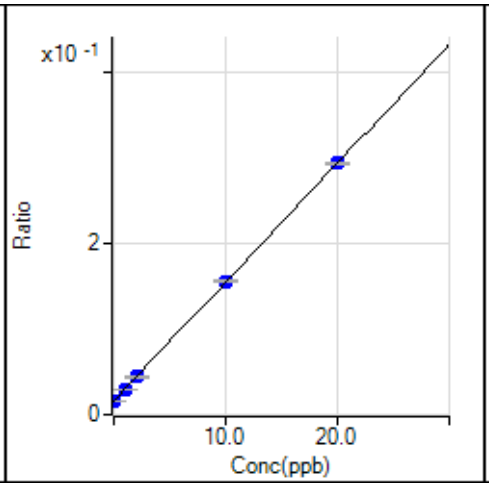
ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	No		H2 Flow	0.0	mL/min	OctP RF	200	V
He Flow	0.0	mL/min	OctP Bias	-8.0	V	Energy Discrimination	5.0	V



9 Be [NoGas] / ISTD: 6 Li

y = 2.003E-2 x + 3.941E-4

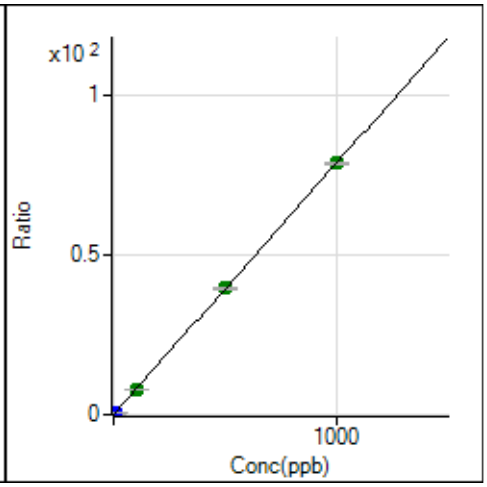
R	1.0000
DL	0.01
BEC	0.01968



11 B [NoGas] / ISTD: 6 Li

y = 1.392E-2 x + 1.620E-2

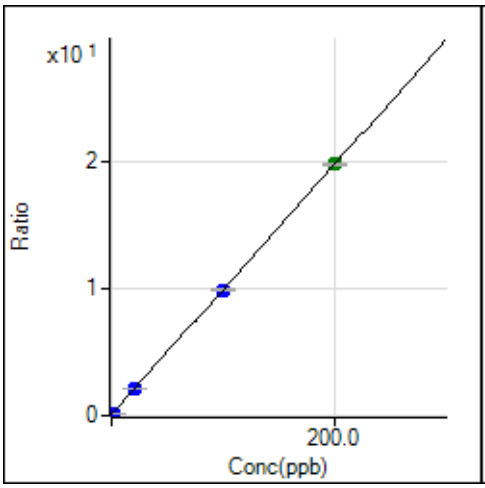
R	1.0000
DL	0.2041
BEC	1.164



27 Al [NoGas] / ISTD: 72 Ge

y = 7.888E-2 x + 4.744E-2

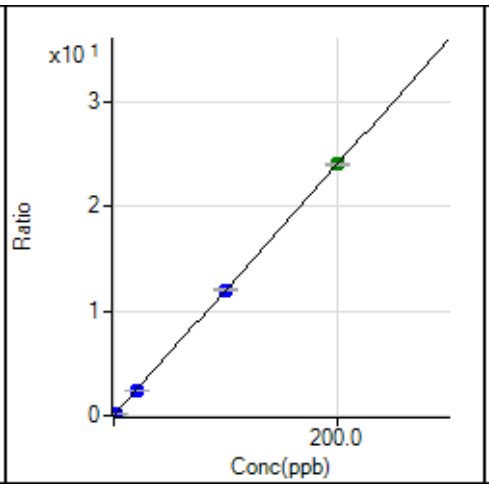
R	1.0000
DL	0.03002
BEC	0.6013



51 V [He] / ISTD: 45 Sc

y = 9.855E-2 x + 9.399E-2

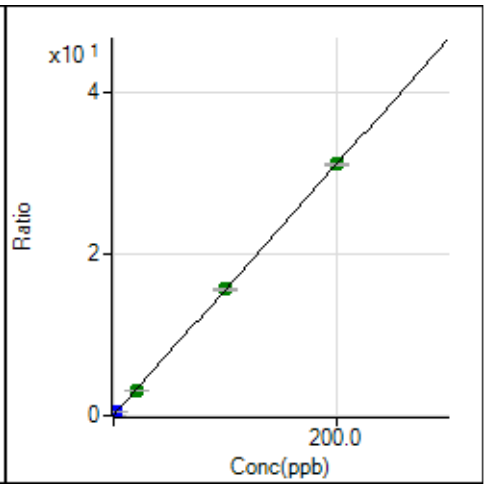
R	1.0000
DL	0.02268
BEC	0.9537



52 Cr [He] / ISTD: 45 Sc

y = 1.200E-1 x + 4.010E-3

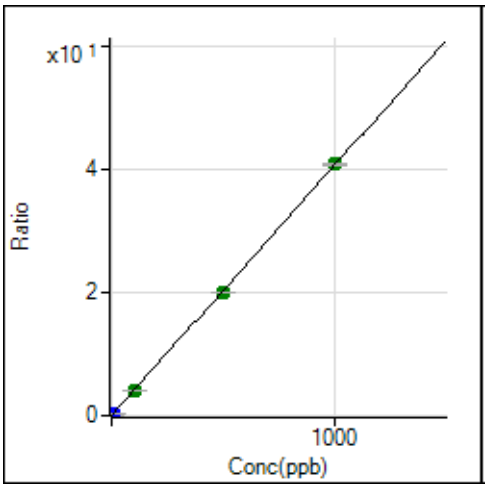
R	1.0000
DL	0.0129
BEC	0.03342



55 Mn [NoGas] / ISTD: 72 Ge

y = 1.552E-1 x + 6.132E-2

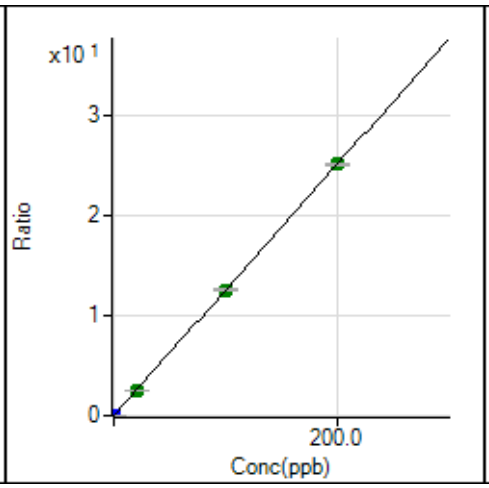
R	1.0000
DL	0.01714
BEC	0.395



56 Fe [H2] / ISTD: 45 Sc

y = 4.073E-2 x + 3.341E-2

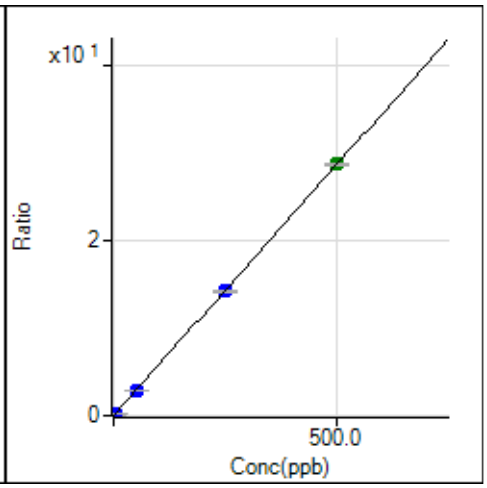
R	1.0000
DL	0.02667
BEC	0.8202



59 Co [NoGas] / ISTD: 72 Ge

y = 1.260E-1 x + 1.585E-3

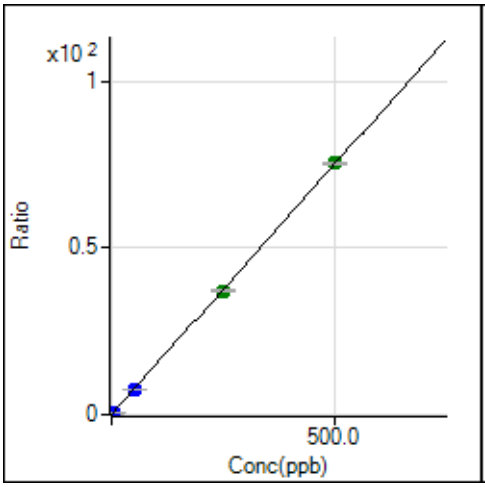
R	1.0000
DL	0.001461
BEC	0.01258



60 Ni [He] / ISTD: 45 Sc

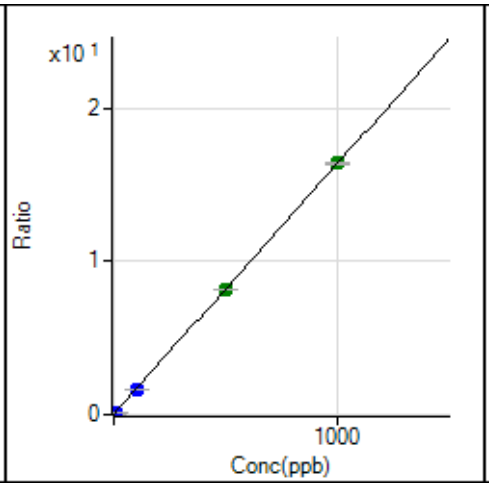
y = 5.735E-2 x + 3.712E-3

R	1.0000
DL	0.02073
BEC	0.06473



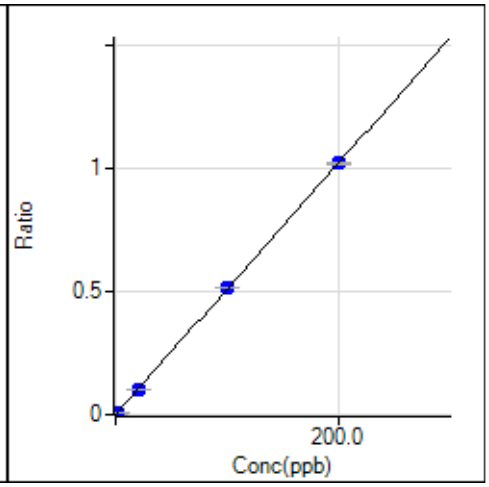
63 Cu [He] / ISTD: 45 Sc
y = 1.503E-1 x + 9.747E-2

R	1.0000
DL	0.0261
BEC	0.6485



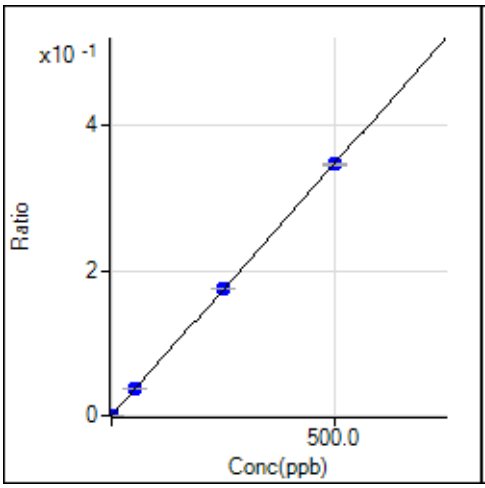
66 Zn [NoGas] / ISTD: 72 Ge
y = 1.636E-2 x + 4.099E-2

R	1.0000
DL	0.1029
BEC	2.506



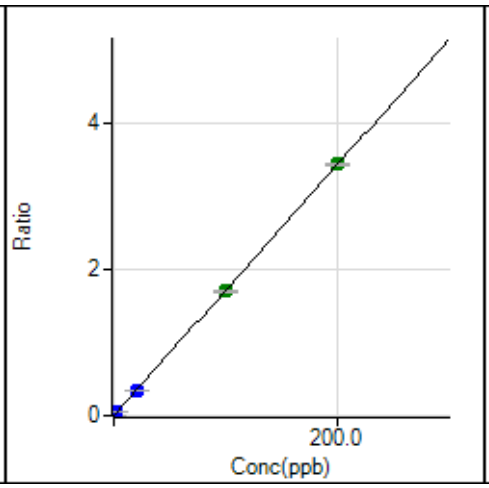
75 As [He] / ISTD: 115 In
y = 5.102E-3 x + 2.562E-4

R	1.0000
DL	0.06558
BEC	0.05022



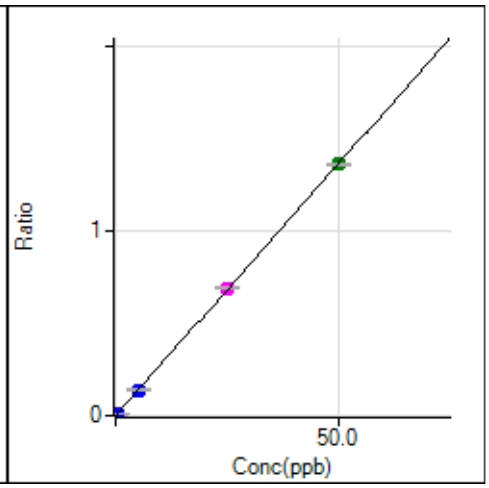
78 Se [H2] / ISTD: 115 In
y = 6.954E-4 x + 5.767E-5

R	1.0000
DL	0.02508
BEC	0.08293



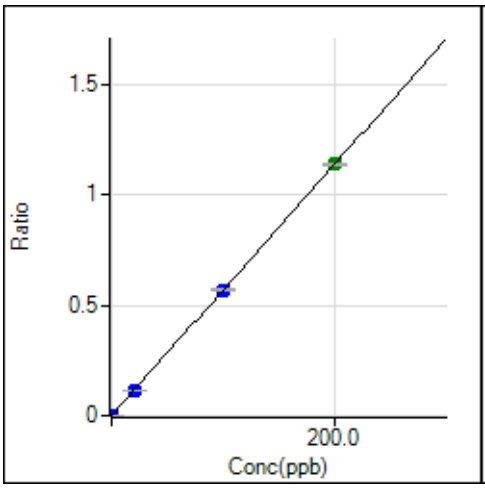
98 Mo [NoGas] / ISTD: 115 In
y = 1.711E-2 x + 2.275E-4

R	1.0000
DL	0.005493
BEC	0.0133



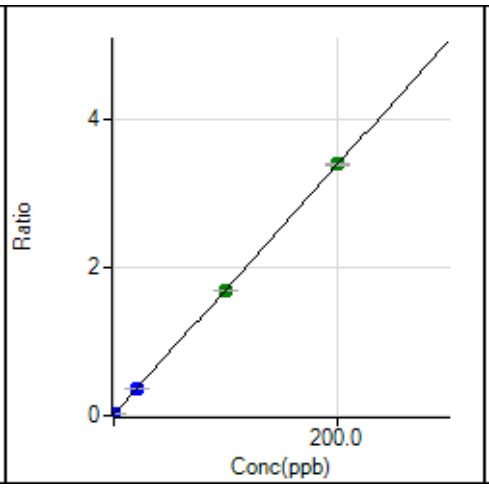
107 Ag [NoGas] / ISTD: 115 In
y = 2.726E-2 x + 2.054E-4

R	1.0000
DL	0.004222
BEC	0.007534



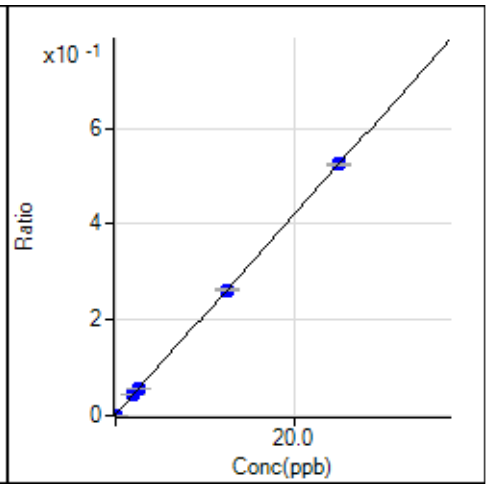
111 Cd [NoGas] / ISTD: 115 In
y = 5.690E-3 x + 4.507E-5

R	1.0000
DL	0.003322
BEC	0.00792



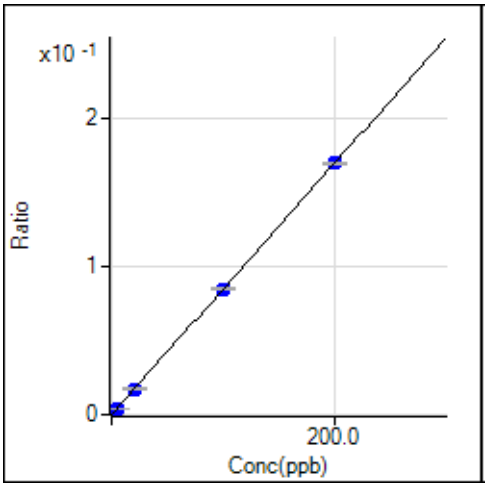
118 Sn [NoGas] / ISTD: 115 In
y = 1.692E-2 x + 1.357E-2

R	1.0000
DL	0.03267
BEC	0.8023



121 Sb [NoGas] / ISTD: 115 In
y = 2.090E-2 x + 1.962E-3

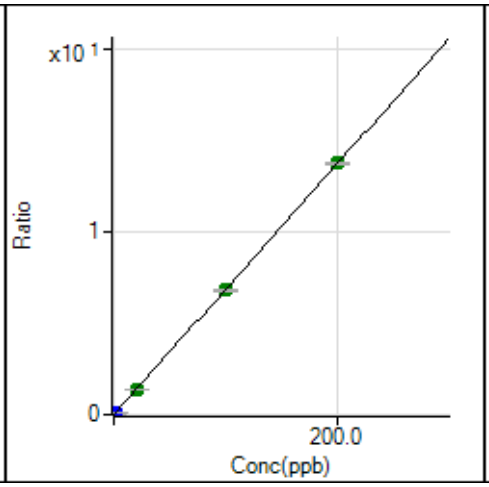
R	1.0000
DL	0.008876
BEC	0.09391



125 Te [NoGas] / ISTD: 115 In

y = 8.476E-4 x + 2.386E-5

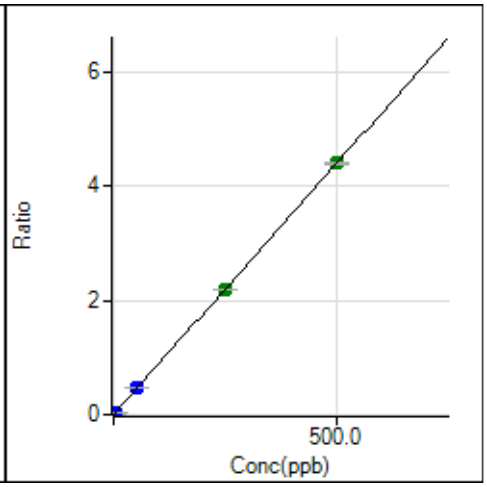
R	1.0000
DL	0.01636
BEC	0.02815



133 Cs [NoGas] / ISTD: 115 In

y = 6.849E-2 x + 5.197E-4

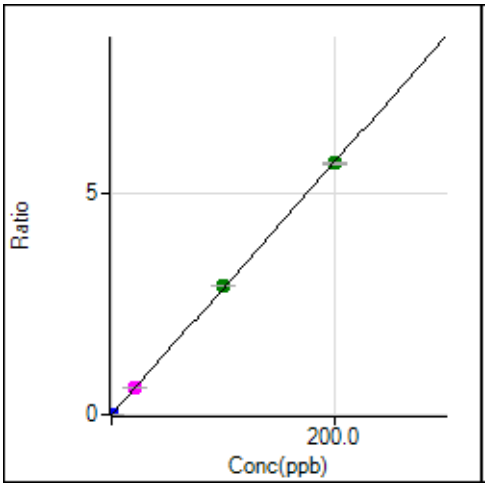
R	1.0000
DL	0.0004157
BEC	0.007589



137 Ba [NoGas] / ISTD: 115 In

y = 8.807E-3 x + 3.640E-4

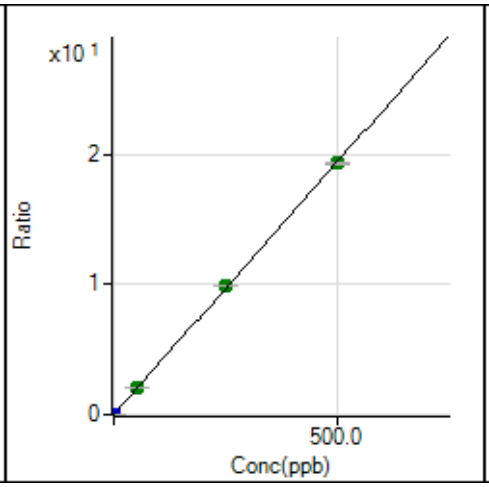
R	1.0000
DL	0.01017
BEC	0.04133



205 Tl [NoGas] / ISTD: 209 Bi

y = 2.847E-2 x + 2.295E-4

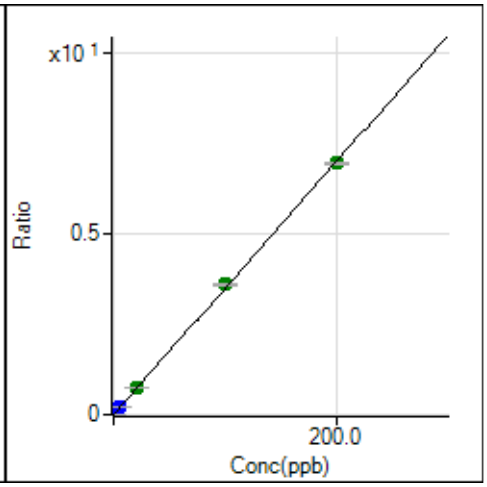
R	0.9999
DL	0.001667
BEC	0.008058



208 Pb [NoGas] / ISTD: 209 Bi

y = 3.890E-2 x + 8.422E-4

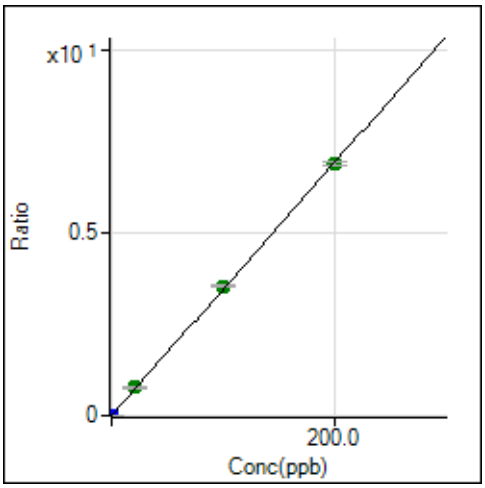
R	0.9999
DL	0.001726
BEC	0.02165



232 Th [NoGas] / ISTD: 209 Bi

y = 3.495E-2 x + 2.149E-4

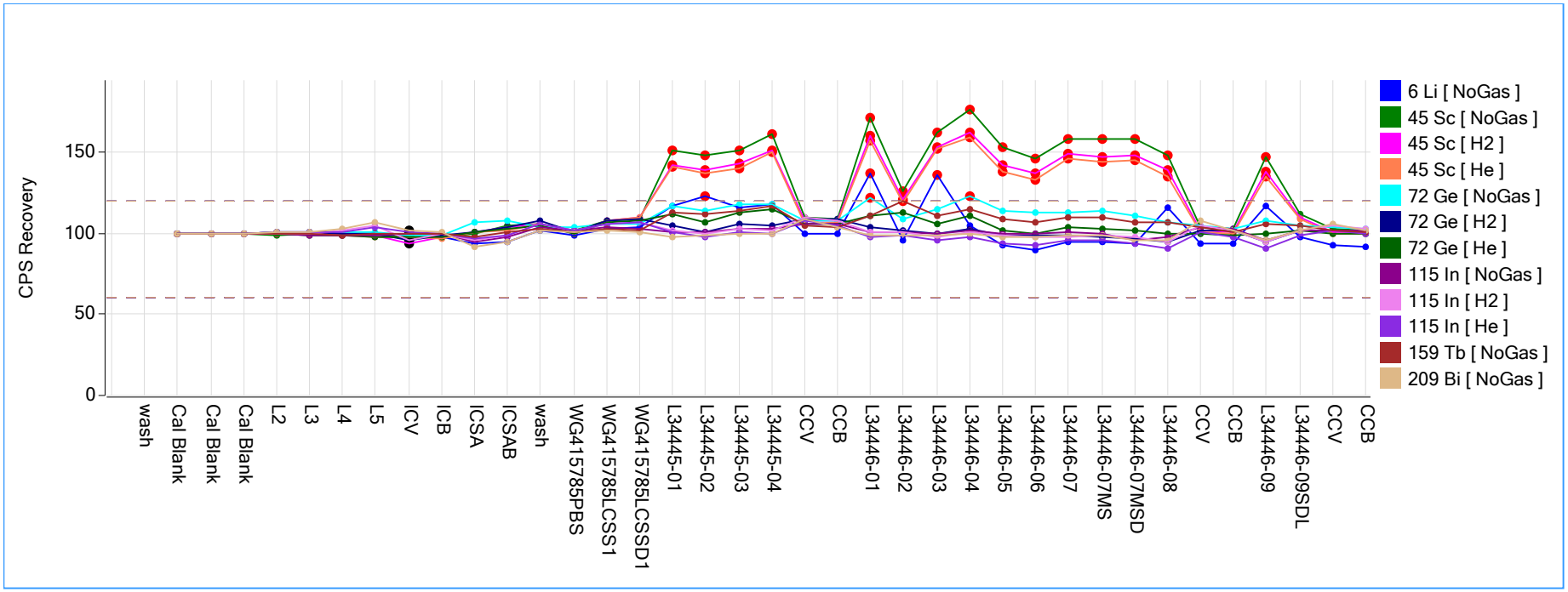
R	0.9998
DL	0.0006027
BEC	0.006149



238 U [NoGas] / ISTD: 209 Bi

y = 3.466E-2 x + 1.756E-4

R	0.9999
DL	0.000636
BEC	0.005067


CPS Recovery
150
100
50
0
wash
Cal Blank
Cal Blank
Cal Blank
L2
L3
L4
L5
ICV
ICB
ICSA
ICSAB
wash
WG415785PBS
WG415785LCSS1
WG415785LCSSD1
L34445-01
L34445-02
L34445-03
L34445-04
CCV
CCB
L34446-01
L34446-02
L34446-03
L34446-04
L34446-05
L34446-06
L34446-07
L34446-07MS
L34446-07MSD
L34446-08
CCV
CCB
L34446-09
L34446-09SDL
CCV
CCB
6 Li [NoGas]
45 Sc [NoGas]
45 Sc [H2]
45 Sc [He]
72 Ge [NoGas]
72 Ge [H2]
72 Ge [He]
115 In [NoGas]
115 In [H2]
115 In [He]
159 Tb [NoGas]
209 Bi [NoGas]

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:34:15 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:36:10 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:38:05 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	200	18.6
11	B	6	NoGas	7968.84	1.3
27	Al	72	NoGas	14501.66	0.9
51	V	45	He	6869.44	0.6
52	Cr	45	He	311.11	23.1
55	Mn	72	NoGas	40784.35	0.5
56	Fe	45	H2	10548.35	3.5
59	Co	72	NoGas	728.91	7.0
60	Ni	45	He	153.34	2.2
63	Cu	45	He	2754.72	2.2
66	Zn	72	NoGas	6296.98	4.8
75	As	115	He	-33.64	-162.1
78	Se	115	H2	80.33	8.7
98	Mo	115	NoGas	320.76	8.9
107	Ag	115	NoGas	353.34	7.5
111	Cd	115	NoGas	41.21	30.7
118	Sn	115	NoGas	11440.38	3.1
121	Sb	115	NoGas	4792.6	6.8
125	Te	115	NoGas	47.78	32.2
133	Cs	115	NoGas	753.35	5.9
137	Ba	115	NoGas	288.89	13.0
205	Tl	209	NoGas	313.34	7.4
208	Pb	209	NoGas	1441.15	3.5
232	Th	209	NoGas	327.78	2.3
238	U	209	NoGas	124.44	12.1

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	433200.39	0.5
45	Sc	NoGas	2587027.26	0.6
45	Sc	H2	608879.94	0.7
45	Sc	He	77993.31	0.9
72	Ge	NoGas	666121.74	0.8
72	Ge	H2	216502.24	0.7
72	Ge	He	61148.64	0.4
115	In	NoGas	2280913.11	0.2
115	In	H2	1380941.82	0.5
115	In	He	247961.08	1.2
159	Tb	NoGas	2803021.55	0.2
209	Bi	NoGas	2687614.89	0.6

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:40:01 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	185.56	11.7
11	B	6	NoGas	7513.04	0.7
27	Al	72	NoGas	14604.03	1.3
51	V	45	He	7196.27	2.8
52	Cr	45	He	275.56	23.5
55	Mn	72	NoGas	40253.89	0.7
56	Fe	45	H2	10109.15	1.2
59	Co	72	NoGas	753.36	4.2
60	Ni	45	He	127.78	22.8
63	Cu	45	He	2658.04	3.3
66	Zn	72	NoGas	6289.19	2.3
75	As	115	He	-11.39	-814.1
78	Se	115	H2	81	4.9
98	Mo	115	NoGas	360.69	26.4
107	Ag	115	NoGas	343.34	6.7
111	Cd	115	NoGas	60.55	31.0
118	Sn	115	NoGas	11780.78	6.3
121	Sb	115	NoGas	4276.25	4.1
125	Te	115	NoGas	48.89	39.9
133	Cs	115	NoGas	747.8	2.0
137	Ba	115	NoGas	286.67	12.3
205	Tl	209	NoGas	275.56	13.5
208	Pb	209	NoGas	1367.81	8.4
232	Th	209	NoGas	284.45	9.5
238	U	209	NoGas	141.11	15.7

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	435987.71	0.1
45	Sc	NoGas	2585226.01	0.7
45	Sc	H2	610252.09	0.5
45	Sc	He	78833.30	0.3
72	Ge	NoGas	666784.26	0.9
72	Ge	H2	219115.16	1.2
72	Ge	He	62290.06	0.7
115	In	NoGas	2263099.89	0.4
115	In	H2	1380478.17	0.5
115	In	He	250099.77	0.5
159	Tb	NoGas	2774630.58	0.3
209	Bi	NoGas	2667994.55	0.5

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:41:57 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	173.34	17.3
11	B	6	NoGas	7119.52	5.4
27	Al	72	NoGas	31926.91	1.8
51	V	45	He	7480.86	1.5
52	Cr	45	He	318.9	11.9
55	Mn	72	NoGas	41265.65	0.9
56	Fe	45	H2	20538.03	0.7
59	Co	72	NoGas	1066.71	3.8
60	Ni	45	He	295.56	11.3
63	Cu	45	He	7757.69	1.4
66	Zn	72	NoGas	27585.51	1.4
75	As	115	He	63.77	43.1
78	Se	115	H2	80	10.0
98	Mo	115	NoGas	518.9	13.7
107	Ag	115	NoGas	468.9	19.2
111	Cd	115	NoGas	102.74	13.2
118	Sn	115	NoGas	30965.98	1.8
121	Sb	115	NoGas	4477.43	3.9
125	Te	115	NoGas	54.45	19.7
133	Cs	115	NoGas	1185.61	1.4
137	Ba	115	NoGas	830.03	7.5
205	Tl	209	NoGas	615.58	6.3
208	Pb	209	NoGas	2260.09	2.5
232	Th	209	NoGas	576.68	3.2
238	U	209	NoGas	471.12	3.5

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	439573.77	0.8
45	Sc	NoGas	2606081.08	0.5
45	Sc	H2	614754.01	0.4
45	Sc	He	79590.76	1.0
72	Ge	NoGas	673042.21	0.5
72	Ge	H2	217511.55	0.9
72	Ge	He	62823.63	1.0
115	In	NoGas	2281326.88	0.8
115	In	H2	1387316.51	0.3
115	In	He	249482.25	0.9
159	Tb	NoGas	2793439.75	0.6
209	Bi	NoGas	2683555.24	0.7

Sample Name	L2
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:43:52 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	2399.09	2.5
11	B	6	NoGas	13058.01	0.9
27	Al	72	NoGas	293489.65	0.3
51	V	45	He	15475.00	1.0
52	Cr	45	He	19996.12	2.1
55	Mn	72	NoGas	309730.27	1.0
56	Fe	45	H2	264674.80	0.8
59	Co	72	NoGas	22577.82	1.4
60	Ni	45	He	14131.44	1.6
63	Cu	45	He	33628.34	2.3
66	Zn	72	NoGas	66955.02	1.2
75	As	115	He	1160.21	10.6
78	Se	115	H2	300.33	8.9
98	Mo	115	NoGas	100323.57	1.3
107	Ag	115	NoGas	16318.52	3.1
111	Cd	115	NoGas	6525.49	0.6
118	Sn	115	NoGas	31074.98	1.1
121	Sb	115	NoGas	103472.30	1.4
125	Te	115	NoGas	9944.74	0.6
133	Cs	115	NoGas	158971.67	0.7
137	Ba	115	NoGas	51611.77	1.9
205	Tl	209	NoGas	37690.92	2.4
208	Pb	209	NoGas	57021.26	0.8
232	Th	209	NoGas	508711.85	0.4
238	U	209	NoGas	50917.48	1.1

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	441835.80	0.0	100.51	60	120	
45	Sc	NoGas	2606081.08	2576950.11	0.2	98.88	60	120	
45	Sc	H2	614754.01	617218.08	0.2	100.4	60	120	
45	Sc	He	79590.76	79735.91	0.6	100.18	60	120	
72	Ge	NoGas	673042.21	674494.68	0.8	100.22	60	120	
72	Ge	H2	217511.55	219055.02	0.9	100.71	60	120	
72	Ge	He	62823.63	62668.41	0.8	99.75	60	120	
115	In	NoGas	2281326.88	2266710.42	0.2	99.36	60	120	
115	In	H2	1387316.51	1385606.16	0.4	99.88	60	120	
115	In	He	249482.25	250565.98	0.4	100.43	60	120	
159	Tb	NoGas	2793439.75	2770301.07	0.3	99.17	60	120	
209	Bi	NoGas	2683555.24	2685555.80	0.7	100.07	60	120	

Sample Name	L3
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:46:05 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	175093.94	1.2
11	B	6	NoGas	19519.54	1.4
27	Al	72	NoGas	5356326.04	1.0
51	V	45	He	171583.16	0.8
52	Cr	45	He	190448.51	0.4
55	Mn	72	NoGas	2146464.01	0.9
56	Fe	45	H2	2537007.89	0.4
59	Co	72	NoGas	1714556.95	0.6
60	Ni	45	He	229318.18	0.6
63	Cu	45	He	605918.74	0.8
66	Zn	72	NoGas	1112487.94	1.1
75	As	115	He	25468.74	1.8
78	Se	115	H2	51928.24	1.1
98	Mo	115	NoGas	783135.89	1.0
107	Ag	115	NoGas	316966.93	1.4
111	Cd	115	NoGas	255090.50	1.4
118	Sn	115	NoGas	824999.97	1.2
121	Sb	115	NoGas	126224.43	1.3
125	Te	115	NoGas	39435.33	1.5
133	Cs	115	NoGas	3063212.79	1.0
137	Ba	115	NoGas	1046224.99	0.5
205	Tl	209	NoGas	1683475.38	1.1
208	Pb	209	NoGas	5488777.80	1.0
232	Th	209	NoGas	2041193.53	1.4
238	U	209	NoGas	2060532.28	1.0

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	442717.55	0.4	100.72	60	120	
45	Sc	NoGas	2606081.08	2593989.89	0.2	99.54	60	120	
45	Sc	H2	614754.01	619102.98	1.0	100.71	60	120	
45	Sc	He	79590.76	79377.34	0.8	99.73	60	120	
72	Ge	NoGas	673042.21	677333.84	0.1	100.64	60	120	
72	Ge	H2	217511.55	218542.03	1.4	100.47	60	120	
72	Ge	He	62823.63	62040.24	0.9	98.75	60	120	
115	In	NoGas	2281326.88	2257560.88	0.2	98.96	60	120	
115	In	H2	1387316.51	1386482.24	0.7	99.94	60	120	
115	In	He	249482.25	249724.91	0.3	100.1	60	120	
159	Tb	NoGas	2793439.75	2782319.89	0.4	99.6	60	120	
209	Bi	NoGas	2683555.24	2697236.49	0.2	100.51	60	120	

Sample Name	L4
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:48:15 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	887673.19	0.6
11	B	6	NoGas	68356.76	1.4
27	Al	72	NoGas	26790213.38	0.8
51	V	45	He	779718.93	0.9
52	Cr	45	He	941965.24	1.1
55	Mn	72	NoGas	10523215.42	0.9
56	Fe	45	H2	12222949.23	0.4
59	Co	72	NoGas	8521782.44	0.8
60	Ni	45	He	1119121.31	1.0
63	Cu	45	He	2922151.14	0.9
66	Zn	72	NoGas	5520546.72	0.8
75	As	115	He	128419.38	1.0
78	Se	115	H2	246620.37	0.5
98	Mo	115	NoGas	3818108.15	0.9
107	Ag	115	NoGas	1548388.90	1.2
111	Cd	115	NoGas	1278686.31	0.7
118	Sn	115	NoGas	3802285.41	0.6
121	Sb	115	NoGas	589442.98	1.4
125	Te	115	NoGas	190515.74	1.4
133	Cs	115	NoGas	15300174.39	1.2
137	Ba	115	NoGas	4929340.08	1.1
205	Tl	209	NoGas	7956940.80	1.0
208	Pb	209	NoGas	27306923.22	0.8
232	Th	209	NoGas	9862237.11	0.5
238	U	209	NoGas	9747138.78	0.8

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	439012.30	0.5	99.87	60	120	
45	Sc	NoGas	2606081.08	2587008.86	0.7	99.27	60	120	
45	Sc	H2	614754.01	607530.84	0.3	98.83	60	120	
45	Sc	He	79590.76	78607.61	0.5	98.76	60	120	
72	Ge	NoGas	673042.21	674855.60	0.9	100.27	60	120	
72	Ge	H2	217511.55	216287.66	1.2	99.44	60	120	
72	Ge	He	62823.63	61583.68	0.7	98.03	60	120	
115	In	NoGas	2281326.88	2247934.67	1.1	98.54	60	120	
115	In	H2	1387316.51	1404428.17	0.5	101.23	60	120	
115	In	He	249482.25	250412.56	0.9	100.37	60	120	
159	Tb	NoGas	2793439.75	2753824.96	1.0	98.58	60	120	
209	Bi	NoGas	2683555.24	2748652.39	0.9	102.43	60	120	

Sample Name	L5
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:50:21 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	1751097.01	1.0
11	B	6	NoGas	128994.18	0.9
27	Al	72	NoGas	53303144.55	1.0
51	V	45	He	1534768.03	1.0
52	Cr	45	He	1860373.47	1.0
55	Mn	72	NoGas	21033839.17	0.6
56	Fe	45	H2	24658979.02	0.7
59	Co	72	NoGas	17037260.43	0.8
60	Ni	45	He	2225771.16	1.2
63	Cu	45	He	5849142.82	1.2
66	Zn	72	NoGas	11102730.39	0.6
75	As	115	He	264285.12	0.9
78	Se	115	H2	500421.30	0.6
98	Mo	115	NoGas	7728186.74	0.5
107	Ag	115	NoGas	3064316.13	0.6
111	Cd	115	NoGas	2566134.35	0.8
118	Sn	115	NoGas	7670674.70	0.5
121	Sb	115	NoGas	1182432.98	1.0
125	Te	115	NoGas	382093.57	0.6
133	Cs	115	NoGas	30931553.21	0.2
137	Ba	115	NoGas	9933469.33	0.9
205	Tl	209	NoGas	16259148.24	0.7
208	Pb	209	NoGas	55489564.74	0.7
232	Th	209	NoGas	19905884.21	0.7
238	U	209	NoGas	19754068.10	0.9

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	438137.76	0.3	99.67	60	120	
45	Sc	NoGas	2606081.08	2575701.98	0.6	98.83	60	120	
45	Sc	H2	614754.01	602801.78	1.1	98.06	60	120	
45	Sc	He	79590.76	77477.24	0.3	97.34	60	120	
72	Ge	NoGas	673042.21	676204.14	0.3	100.47	60	120	
72	Ge	H2	217511.55	216612.73	1.0	99.59	60	120	
72	Ge	He	62823.63	61387.42	0.4	97.71	60	120	
115	In	NoGas	2281326.88	2254334.18	0.3	98.82	60	120	
115	In	H2	1387316.51	1443726.47	0.7	104.07	60	120	
115	In	He	249482.25	259253.91	0.2	103.92	60	120	
159	Tb	NoGas	2793439.75	2781433.92	0.4	99.57	60	120	
209	Bi	NoGas	2683555.24	2869602.04	0.7	106.93	60	120	

Sample Name ICV

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 7:52:25 PM

Sample Type ICV

Total Dilution 1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	48.729	1.3	50	97.46	
11	B	6	NoGas	19.959	0.4	20	99.8	
27	Al	72	NoGas	100.605	0.9	100	100.61	
51	V	45	He	47.296	0.8	50	94.59	
52	Cr	45	He	49.959	0.5	50	99.92	
55	Mn	72	NoGas	50.375	1.0	50	100.75	
56	Fe	45	H2	105.001	9.0	100	105	
59	Co	72	NoGas	51.501	1.2	50	103	
60	Ni	45	He	49.036	0.8	50	98.07	
63	Cu	45	He	50.805	0.5	50	101.61	
66	Zn	72	NoGas	49.608	1.5	50	99.22	
75	As	115	He	48.764	0.9	50	97.53	
78	Se	115	H2	54.017	7.7	50	108.03	
98	Mo	115	NoGas	19.382	1.2	20	96.91	
107	Ag	115	NoGas	20.047	1.5	20	100.24	
111	Cd	115	NoGas	50.493	0.7	50	100.99	
118	Sn	115	NoGas	48.402	0.8	50	96.8	
121	Sb	115	NoGas	20.544	1.5	20	102.72	
125	Te	115	NoGas	50.086	1.7	50	100.17	
133	Cs	115	NoGas	50.390	1.4	50	100.78	
137	Ba	115	NoGas	49.630	1.3	50	99.26	
205	Tl	209	NoGas	54.642	1.7	50	109.28	
208	Pb	209	NoGas	53.879	1.5	50	107.76	
232	Th	209	NoGas	53.001	0.4	50	106	
238	U	209	NoGas	52.658	1.1	50	105.32	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	426622.21	0.6	97.05	60	120	
45	Sc	NoGas	2606081.08	2530173.79	0.5	97.09	60	120	
45	Sc	H2	614754.01	571614.87	7.1	92.98	60	120	
45	Sc	He	79590.76	77435.78	0.6	97.29	60	120	
72	Ge	NoGas	673042.21	663439.11	0.4	98.57	60	120	
72	Ge	H2	217511.55	208198.54	4.1	95.72	60	120	
72	Ge	He	62823.63	61481.16	1.1	97.86	60	120	
115	In	NoGas	2281326.88	2263644.17	0.5	99.22	60	120	
115	In	H2	1387316.51	1328430.78	6.5	95.76	60	120	
115	In	He	249482.25	251497.88	0.8	100.81	60	120	
159	Tb	NoGas	2793439.75	2790489.33	0.4	99.89	60	120	
209	Bi	NoGas	2683555.24	2711505.38	0.5	101.04	60	120	

Sample Name	ICB
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:54:21 PM
Sample Type	ICB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.075	15.1	0.11	
11	B	6	NoGas	-0.093	N/A	1.1	
27	Al	72	NoGas	0.006	186.5	2.2	
51	V	45	He	-0.434	N/A	0.44	
52	Cr	45	He	0.003	120.3	1.1	
55	Mn	72	NoGas	-0.030	N/A	1.1	
59	Co	72	NoGas	0.011	28.4	0.11	
60	Ni	45	He	0.011	70.0	1.32	
63	Cu	45	He	-0.007	N/A	1.1	
66	Zn	72	NoGas	0.059	73.7	4.4	
75	As	115	He	0.137	79.4	0.44	
78	Se	115	H2	0.034	8.5	0.22	
107	Ag	115	NoGas	0.004	20.1	0.11	
111	Cd	115	NoGas	0.007	41.6	0.22	
118	Sn	115	NoGas	0.045	6.9	0.22	
121	Sb	115	NoGas	0.088	12.3	0.88	
125	Te	115	NoGas	0.006	18.6	2.2	
133	Cs	115	NoGas	0.015	20.9	0.44	
137	Ba	115	NoGas	0.011	59.9	1.1	
205	Tl	209	NoGas	0.018	23.3	0.22	
208	Pb	209	NoGas	0.031	20.9	0.22	
232	Th	209	NoGas	0.026	14.7	2.2	
238	U	209	NoGas	0.010	41.7	0.22	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	426843.64	0.4	97.1	60	120	
45	Sc	NoGas	2606081.08	2533497.75	0.3	97.21	60	120	
45	Sc	H2	614754.01	599705.32	0.9	97.55	60	120	
45	Sc	He	79590.76	76840.37	0.5	96.54	60	120	
72	Ge	NoGas	673042.21	665758.39	0.6	98.92	60	120	
72	Ge	H2	217511.55	213974.37	0.3	98.37	60	120	
72	Ge	He	62823.63	61309.26	0.3	97.59	60	120	
115	In	NoGas	2281326.88	2274583.73	0.3	99.7	60	120	
115	In	H2	1387316.51	1378132.55	0.3	99.34	60	120	
115	In	He	249482.25	248836.04	0.6	99.74	60	120	
159	Tb	NoGas	2793439.75	2787306.56	0.6	99.78	60	120	
209	Bi	NoGas	2683555.24	2696904.68	0.5	100.5	60	120	

Sample Name	ICSA
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:56:19 PM
Sample Type	ICSA
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Conc.	Conc. RSD	ExpValue	%QC Low	%QC High	QC Flag
9	Be	6	NoGas	0.044	7.2			500	
11	B	6	NoGas	0.935	5.4			500	
27	Al	72	NoGas	46604.853	0.3			5500000	
51	V	45	He	-0.721	N/A			500	
52	Cr	45	He	0.246	4.8			500	
55	Mn	72	NoGas	0.439	0.7			500	
59	Co	72	NoGas	0.218	1.4			500	
60	Ni	45	He	0.219	2.7			500	
63	Cu	45	He	-0.203	N/A			500	
66	Zn	72	NoGas	-0.420	N/A			500	
75	As	115	He	0.176	28.0			500	
78	Se	115	H2	0.042	11.3			500	
107	Ag	115	NoGas	0.072	1.8			500	
111	Cd	115	NoGas	0.067	123.9			500	
118	Sn	115	NoGas	-0.229	N/A			500	
121	Sb	115	NoGas	0.167	5.9			500	
125	Te	115	NoGas	0.009	56.8			500	
133	Cs	115	NoGas	0.023	14.6			500	
137	Ba	115	NoGas	0.326	1.5			500	
205	Tl	209	NoGas	0.006	10.1			500	
208	Pb	209	NoGas	0.049	9.3			500	
232	Th	209	NoGas	0.038	6.8			500	
238	U	209	NoGas	0.010	5.8			500	

QC ISTD Table

Mass	Name	Tune Mode	Ref CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.766666667	409238.37	1.0	93.1	60	120	
45	Sc	NoGas	2606081.08	2592640.10	2.2	99.48	60	120	
45	Sc	H2	614754.006666667	616014.52	0.9	100.21	60	120	
45	Sc	He	79590.7566666667	80200.71	0.8	100.77	60	120	
72	Ge	NoGas	673042.213333333	715427.76	1.1	106.3	60	120	
72	Ge	H2	217511.546666667	218368.05	1.5	100.39	60	120	
72	Ge	He	62823.6266666667	62849.27	1.2	100.04	60	120	
115	In	NoGas	2281326.88333333	2153113.89	1.4	94.38	60	120	
115	In	H2	1387316.50666667	1327057.00	0.9	95.66	60	120	
115	In	He	249482.246666667	240832.86	0.5	96.53	60	120	
159	Tb	NoGas	2793439.75	2735053.92	1.9	97.91	60	120	
209	Bi	NoGas	2683555.24	2464531.15	1.7	91.84	60	120	

Sample Name	ICSAB
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:58:21 PM
Sample Type	ICSB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Conc.	Conc. RSD	ExpValue	%QC Low	%QC High	QC Flag
9	Be	6	NoGas	19.961	1.3	100	80	120	
11	B	6	NoGas	10.429	0.8	100	80	120	
51	V	45	He	18.770	1.9	100	80	120	
52	Cr	45	He	18.957	0.7	100	80	120	
55	Mn	72	NoGas	19.377	0.9	100	80	120	
59	Co	72	NoGas	18.637	0.3	100	80	120	
60	Ni	45	He	18.289	1.1	100	80	120	
63	Cu	45	He	17.749	1.3	100	80	120	
66	Zn	72	NoGas	17.938	2.1	100	80	120	
75	As	115	He	21.410	1.9	100	80	120	
78	Se	115	H2	21.443	1.4	100	80	120	
107	Ag	115	NoGas	9.192	2.1	100	80	120	
111	Cd	115	NoGas	19.457	1.2	100	80	120	
118	Sn	115	NoGas	19.478	2.0	100	80	120	
121	Sb	115	NoGas	10.235	1.5	100	80	120	
125	Te	115	NoGas	19.554	0.3	100	80	120	
133	Cs	115	NoGas	20.299	1.1	100	80	120	
137	Ba	115	NoGas	19.723	2.2	100	80	120	
205	Tl	209	NoGas	21.002	2.6	100	80	120	
208	Pb	209	NoGas	20.778	1.8	100	80	120	
232	Th	209	NoGas	54.621	1.1	100	80	120	
238	U	209	NoGas	22.109	1.6	100	80	120	

QC ISTD Table

Mass	Name	Tune Mode	Ref CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.766666667	416446.32	0.9	94.74	60	120	
45	Sc	NoGas	2606081.08	2719249.68	1.2	104.34	60	120	
45	Sc	H2	614754.006666667	633884.56	0.8	103.11	60	120	
45	Sc	He	79590.7566666667	80939.17	0.5	101.69	60	120	
72	Ge	NoGas	673042.213333333	724955.66	0.4	107.71	60	120	
72	Ge	H2	217511.546666667	224656.40	0.4	103.28	60	120	
72	Ge	He	62823.6266666667	64208.53	1.1	102.2	60	120	
115	In	NoGas	2281326.88333333	2232470.28	1.2	97.86	60	120	
115	In	H2	1387316.50666667	1365967.65	0.2	98.46	60	120	
115	In	He	249482.246666667	246403.10	1.3	98.77	60	120	
159	Tb	NoGas	2793439.75	2817797.94	0.9	100.87	60	120	
209	Bi	NoGas	2683555.24	2540573.02	1.4	94.67	60	120	

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:00:23 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	0.026	0.03	ppb	10.7	200	
11	B	6	NoGas	-0.291	-0.29	ppb	3.2	20	
27	Al	72	NoGas	4.928	4.93	ppb	41.7	1000	
51	V	45	He	-0.862	-0.86	ppb	8.4	200	
52	Cr	45	He	-0.015	-0.02	ppb	16.1	200	
55	Mn	72	NoGas	-0.085	-0.08	ppb	0.4	200	
56	Fe	45	H2	2.524	2.52	ppb	6.6	1000	
59	Co	72	NoGas	0.000	0	ppb	14.8	200	
60	Ni	45	He	0.002	0	ppb	4.5	500	
63	Cu	45	He	-0.390	-0.39	ppb	5.8	500	
66	Zn	72	NoGas	-1.731	-1.73	ppb	1.2	1000	
75	As	115	He	-0.038	-0.04	ppb	265.3	200	
78	Se	115	H2	-0.033	-0.03	ppb	10.9	500	
98	Mo	115	NoGas	0.162	0.16	ppb	28.1	200	
107	Ag	115	NoGas	-0.001	0	ppb	5.4	50	
111	Cd	115	NoGas	-0.003	0	ppb	48.7	200	
118	Sn	115	NoGas	-0.599	-0.6	ppb	5.8	200	
121	Sb	115	NoGas	-0.007	-0.01	ppb	2.5	25	
125	Te	115	NoGas	-0.008	-0.01	ppb	20.4	200	
133	Cs	115	NoGas	-0.001	0	ppb	11.1	200	
137	Ba	115	NoGas	0.007	0.01	ppb	17.1	500	
205	Tl	209	NoGas	0.008	0.01	ppb	3.4	200	
208	Pb	209	NoGas	-0.003	0	ppb	14.6	500	
232	Th	209	NoGas	0.003	0	ppb	24.7	200	
238	U	209	NoGas	-0.002	0	ppb	47.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	445467.62	0.7	101.34	60	120	
45	Sc	NoGas	2606081.08	2746332.25	1.0	105.38	60	120	
45	Sc	H2	614754.01	650048.86	1.1	105.74	60	120	
45	Sc	He	79590.76	83892.45	0.4	105.4	60	120	
72	Ge	NoGas	673042.21	694330.35	0.6	103.16	60	120	
72	Ge	H2	217511.55	234338.77	0.9	107.74	60	120	
72	Ge	He	62823.63	65816.04	2.0	104.76	60	120	
115	In	NoGas	2281326.88	2364161.26	0.6	103.63	60	120	
115	In	H2	1387316.51	1462642.09	0.7	105.43	60	120	
115	In	He	249482.25	263188.37	0.4	105.49	60	120	
159	Tb	NoGas	2793439.75	2856619.40	0.5	102.26	60	120	
209	Bi	NoGas	2683555.24	2734304.41	0.7	101.89	60	120	

Sample Name WG415785PBS

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:02:19 PM

Sample Type Sample

Total Dilution 500.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	6.337	0.01	ppb	8.9	200	
11	B	6	NoGas	346.907	0.69	ppb	1.1	20	
27	Al	72	NoGas	253.702	0.51	ppb	3.5	1000	
51	V	45	He	-18.233	-0.04	ppb	0.2	200	
52	Cr	45	He	29.895	0.06	ppb	6.5	200	
55	Mn	72	NoGas	73.620	0.15	ppb	2.6	200	
56	Fe	45	H2	498.526	1	ppb	1.5	1000	
59	Co	72	NoGas	-0.493	0	ppb	5.1	200	
60	Ni	45	He	15.029	0.03	ppb	5.0	500	
63	Cu	45	He	-125.578	-0.25	ppb	5.1	500	
66	Zn	72	NoGas	-460.160	-0.92	ppb	1.4	1000	
75	As	115	He	63.183	0.13	ppb	28.6	200	
78	Se	115	H2	30.252	0.06	ppb	7.6	500	
98	Mo	115	NoGas	16.472	0.03	ppb	5.2	200	
107	Ag	115	NoGas	0.185	0	ppb	14.1	50	
111	Cd	115	NoGas	-0.194	0	ppb	23.9	200	
118	Sn	115	NoGas	3636.188	7.27	ppb	1.1	200	
121	Sb	115	NoGas	43.140	0.09	ppb	12.1	25	
125	Te	115	NoGas	-5.865	-0.01	ppb	6.0	200	
133	Cs	115	NoGas	-0.108	0	ppb	5.7	200	
137	Ba	115	NoGas	-14.288	-0.03	ppb	6.8	500	
205	Tl	209	NoGas	8.243	0.02	ppb	32.5	200	
208	Pb	209	NoGas	28.335	0.06	ppb	9.0	500	
232	Th	209	NoGas	-1.274	0	ppb	11.4	200	
238	U	209	NoGas	-2.009	0	ppb	14.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	433909.52	0.5	98.71	60	120	
45	Sc	NoGas	2606081.08	2649273.85	0.3	101.66	60	120	
45	Sc	H2	614754.01	610972.27	0.6	99.38	60	120	
45	Sc	He	79590.76	78924.83	1.0	99.16	60	120	
72	Ge	NoGas	673042.21	695166.50	0.7	103.29	60	120	
72	Ge	H2	217511.55	218686.83	0.8	100.54	60	120	
72	Ge	He	62823.63	62595.90	1.4	99.64	60	120	
115	In	NoGas	2281326.88	2315284.78	0.2	101.49	60	120	
115	In	H2	1387316.51	1406375.29	1.0	101.37	60	120	
115	In	He	249482.25	252317.53	0.6	101.14	60	120	
159	Tb	NoGas	2793439.75	2800229.26	0.7	100.24	60	120	
209	Bi	NoGas	2683555.24	2692047.95	1.0	100.32	60	120	

Sample Name WG415785LCSS1

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:04:15 PM

Sample Type Sample

Total Dilution 5000.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	92796.678	18.56	ppb	1.1	200	
11	B	6	NoGas	120143.774	24.03	ppb	1.0	20	OCAL
27	Al	72	NoGas	7728998.419	1545.8	ppb	0.8	1000	OCAL
51	V	45	He	99467.081	19.89	ppb	1.4	200	
52	Cr	45	He	132924.224	26.58	ppb	1.4	200	
55	Mn	72	NoGas	299045.477	59.81	ppb	1.0	200	
56	Fe	45	H2	13757147.385	2751.43	ppb	0.8	1000	OCAL
59	Co	72	NoGas	159975.103	32	ppb	0.9	200	
60	Ni	45	He	122262.385	24.45	ppb	1.2	500	
63	Cu	45	He	159186.720	31.84	ppb	1.3	500	
66	Zn	72	NoGas	183724.012	36.74	ppb	0.6	1000	
75	As	115	He	137094.220	27.42	ppb	1.9	200	
78	Se	115	H2	175828.114	35.17	ppb	0.7	500	
98	Mo	115	NoGas	116224.927	23.24	ppb	1.8	200	
107	Ag	115	NoGas	29386.682	5.88	ppb	1.6	50	
111	Cd	115	NoGas	85886.102	17.18	ppb	0.9	200	
118	Sn	115	NoGas	144863.591	28.97	ppb	1.1	200	
121	Sb	115	NoGas	84221.587	16.84	ppb	0.7	25	
125	Te	115	NoGas	-7.200	0	ppb	12.5	200	
133	Cs	115	NoGas	1343.136	0.27	ppb	1.6	200	
137	Ba	115	NoGas	190636.633	38.13	ppb	1.0	500	
205	Tl	209	NoGas	144024.148	28.8	ppb	2.7	200	
208	Pb	209	NoGas	152466.715	30.49	ppb	1.7	500	
232	Th	209	NoGas	18410.571	3.68	ppb	1.1	200	
238	U	209	NoGas	17947.541	3.59	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	450094.64	0.3	102.39	60	120	
45	Sc	NoGas	2606081.08	2803397.60	0.3	107.57	60	120	
45	Sc	H2	614754.01	662469.92	0.3	107.76	60	120	
45	Sc	He	79590.76	85801.35	0.8	107.8	60	120	
72	Ge	NoGas	673042.21	707842.72	0.4	105.17	60	120	
72	Ge	H2	217511.55	233617.36	0.0	107.4	60	120	
72	Ge	He	62823.63	66703.49	0.1	106.18	60	120	
115	In	NoGas	2281326.88	2355668.11	0.2	103.26	60	120	
115	In	H2	1387316.51	1467629.07	0.1	105.79	60	120	
115	In	He	249482.25	262740.88	0.7	105.31	60	120	
159	Tb	NoGas	2793439.75	2870649.68	0.5	102.76	60	120	
209	Bi	NoGas	2683555.24	2725575.10	0.2	101.57	60	120	

Sample Name WG415785LCSSD1

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:06:11 PM

Sample Type Sample

Total Dilution 5000.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	92874.114	18.58	ppb	0.3	200	
11	B	6	NoGas	122068.180	24.41	ppb	0.4	20	OCAL
27	Al	72	NoGas	7888029.165	1577.61	ppb	0.6	1000	OCAL
51	V	45	He	103569.980	20.71	ppb	1.2	200	
52	Cr	45	He	135822.575	27.16	ppb	0.6	200	
55	Mn	72	NoGas	303849.419	60.77	ppb	0.6	200	
56	Fe	45	H2	14589580.498	2917.92	ppb	0.9	1000	OCAL
59	Co	72	NoGas	160330.390	32.07	ppb	0.9	200	
60	Ni	45	He	124052.015	24.81	ppb	1.2	500	
63	Cu	45	He	161896.833	32.38	ppb	1.2	500	
66	Zn	72	NoGas	185400.569	37.08	ppb	0.8	1000	
75	As	115	He	143719.913	28.74	ppb	1.0	200	
78	Se	115	H2	180828.622	36.17	ppb	1.1	500	
98	Mo	115	NoGas	116300.475	23.26	ppb	1.1	200	
107	Ag	115	NoGas	29685.769	5.94	ppb	0.6	50	
111	Cd	115	NoGas	85625.113	17.12	ppb	1.0	200	
118	Sn	115	NoGas	142419.506	28.48	ppb	1.0	200	
121	Sb	115	NoGas	84020.490	16.8	ppb	0.6	25	
125	Te	115	NoGas	32.871	0.01	ppb	26.6	200	
133	Cs	115	NoGas	1333.582	0.27	ppb	1.2	200	
137	Ba	115	NoGas	202456.988	40.49	ppb	0.5	500	
205	Tl	209	NoGas	149094.981	29.82	ppb	1.9	200	
208	Pb	209	NoGas	151270.962	30.25	ppb	0.6	500	
232	Th	209	NoGas	19416.568	3.88	ppb	0.9	200	
238	U	209	NoGas	17551.469	3.51	ppb	0.5	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	453246.08	0.4	103.11	60	120	
45	Sc	NoGas	2606081.08	2835441.00	0.3	108.8	60	120	
45	Sc	H2	614754.01	671553.98	0.5	109.24	60	120	
45	Sc	He	79590.76	87343.90	0.8	109.74	60	120	
72	Ge	NoGas	673042.21	712214.97	0.1	105.82	60	120	
72	Ge	H2	217511.55	236707.34	0.5	108.83	60	120	
72	Ge	He	62823.63	67696.85	0.7	107.76	60	120	
115	In	NoGas	2281326.88	2339361.18	0.7	102.54	60	120	
115	In	H2	1387316.51	1474777.27	1.0	106.3	60	120	
115	In	He	249482.25	266495.43	1.1	106.82	60	120	
159	Tb	NoGas	2793439.75	2845980.16	0.3	101.88	60	120	
209	Bi	NoGas	2683555.24	2691099.20	0.4	100.28	60	120	

Sample Name L34445-01

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:08:07 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1064.930	2.11	ppb	1.9	200	
11	B	6	NoGas	9561.415	18.93	ppb	0.5	20	
27	Al	72	NoGas	20746600.201	41082.38	ppb	0.6	1000	OCAL
51	V	45	He	110039.516	217.9	ppb	1.0	200	OCAL
52	Cr	45	He	89727.958	177.68	ppb	1.0	200	
55	Mn	72	NoGas	688836.206	1364.03	ppb	0.6	200	OCAL
56	Fe	45	H2	17580552.472	34812.98	ppb	0.6	1000	OCAL
59	Co	72	NoGas	7678.196	15.2	ppb	0.8	200	
60	Ni	45	He	51821.003	102.62	ppb	0.8	500	
63	Cu	45	He	17762.169	35.17	ppb	0.5	500	
66	Zn	72	NoGas	433664.873	858.74	ppb	0.9	1000	
75	As	115	He	8631.984	17.09	ppb	1.7	200	
78	Se	115	H2	2139.260	4.24	ppb	1.1	500	
98	Mo	115	NoGas	4007.777	7.94	ppb	1.2	200	
107	Ag	115	NoGas	1021.414	2.02	ppb	0.9	50	
111	Cd	115	NoGas	14820.694	29.35	ppb	1.2	200	
118	Sn	115	NoGas	4426.925	8.77	ppb	0.7	200	
121	Sb	115	NoGas	578.352	1.14	ppb	1.2	25	
125	Te	115	NoGas	56.517	0.11	ppb	13.5	200	
133	Cs	115	NoGas	2538.992	5.03	ppb	0.9	200	
137	Ba	115	NoGas	155440.166	307.8	ppb	0.9	500	
205	Tl	209	NoGas	684.851	1.36	ppb	2.3	200	
208	Pb	209	NoGas	15000.577	29.7	ppb	0.7	500	
232	Th	209	NoGas	8796.845	17.42	ppb	0.8	200	
238	U	209	NoGas	11150.421	22.08	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	511442.62	0.2	116.35	60	120	
45	Sc	NoGas	2606081.08	3924075.26	0.9	150.57	60	120	FAIL
45	Sc	H2	614754.01	871099.17	0.1	141.7	60	120	FAIL
45	Sc	He	79590.76	111730.99	1.7	140.38	60	120	FAIL
72	Ge	NoGas	673042.21	786247.63	0.3	116.82	60	120	
72	Ge	H2	217511.55	228054.34	0.4	104.85	60	120	
72	Ge	He	62823.63	69957.75	2.0	111.36	60	120	
115	In	NoGas	2281326.88	2293934.93	1.0	100.55	60	120	
115	In	H2	1387316.51	1408084.77	0.9	101.5	60	120	
115	In	He	249482.25	249823.70	1.0	100.14	60	120	
159	Tb	NoGas	2793439.75	3147420.64	0.7	112.67	60	120	
209	Bi	NoGas	2683555.24	2614616.42	0.9	97.43	60	120	

Sample Name L34445-02

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:10:10 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	951.037	1.88	ppb	0.7	200	
11	B	6	NoGas	11176.620	22.13	ppb	1.1	20	OCAL
27	Al	72	NoGas	19609848.741	38831.38	ppb	0.5	1000	OCAL
51	V	45	He	24237.589	48	ppb	1.0	200	
52	Cr	45	He	18474.698	36.58	ppb	0.7	200	
55	Mn	72	NoGas	2545100.979	5039.8	ppb	0.3	200	OCAL
56	Fe	45	H2	20627262.504	40846.06	ppb	0.2	1000	OCAL
59	Co	72	NoGas	13240.282	26.22	ppb	0.4	200	
60	Ni	45	He	20065.957	39.74	ppb	0.5	500	
63	Cu	45	He	15406.251	30.51	ppb	0.9	500	
66	Zn	72	NoGas	73502.697	145.55	ppb	0.2	1000	
75	As	115	He	6797.077	13.46	ppb	1.2	200	
78	Se	115	H2	243.087	0.48	ppb	1.0	500	
98	Mo	115	NoGas	422.829	0.84	ppb	2.6	200	
107	Ag	115	NoGas	102.207	0.2	ppb	0.1	50	
111	Cd	115	NoGas	864.901	1.71	ppb	1.7	200	
118	Sn	115	NoGas	3944.811	7.81	ppb	0.4	200	
121	Sb	115	NoGas	187.447	0.37	ppb	1.9	25	
125	Te	115	NoGas	34.695	0.07	ppb	8.9	200	
133	Cs	115	NoGas	2240.765	4.44	ppb	0.3	200	
137	Ba	115	NoGas	219368.968	434.39	ppb	0.7	500	
205	Tl	209	NoGas	228.570	0.45	ppb	1.9	200	
208	Pb	209	NoGas	21855.306	43.28	ppb	0.7	500	
232	Th	209	NoGas	6919.618	13.7	ppb	1.1	200	
238	U	209	NoGas	676.065	1.34	ppb	0.7	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	537001.63	0.1	122.16	60	120	FAIL
45	Sc	NoGas	2606081.08	3855781.10	0.4	147.95	60	120	FAIL
45	Sc	H2	614754.01	854775.09	0.1	139.04	60	120	FAIL
45	Sc	He	79590.76	108981.35	0.7	136.93	60	120	FAIL
72	Ge	NoGas	673042.21	761246.78	0.5	113.11	60	120	
72	Ge	H2	217511.55	218524.85	0.5	100.47	60	120	
72	Ge	He	62823.63	66953.46	1.6	106.57	60	120	
115	In	NoGas	2281326.88	2286490.26	1.1	100.23	60	120	
115	In	H2	1387316.51	1373678.87	0.4	99.02	60	120	
115	In	He	249482.25	243112.20	0.9	97.45	60	120	
159	Tb	NoGas	2793439.75	3103765.71	1.7	111.11	60	120	
209	Bi	NoGas	2683555.24	2652313.92	1.2	98.84	60	120	

Sample Name L34445-03

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:12:12 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	907.905	1.8	ppb	1.1	200	
11	B	6	NoGas	9873.919	19.55	ppb	1.3	20	
27	Al	72	NoGas	16749355.587	33167.04	ppb	1.0	1000	OCAL
51	V	45	He	41321.776	81.82	ppb	1.7	200	
52	Cr	45	He	47422.471	93.91	ppb	3.0	200	
55	Mn	72	NoGas	1052690.287	2084.54	ppb	1.1	200	OCAL
56	Fe	45	H2	17776971.839	35201.92	ppb	1.0	1000	OCAL
59	Co	72	NoGas	9477.290	18.77	ppb	0.8	200	
60	Ni	45	He	40930.679	81.05	ppb	1.9	500	
63	Cu	45	He	20655.315	40.9	ppb	2.0	500	
66	Zn	72	NoGas	221178.366	437.98	ppb	1.1	1000	
75	As	115	He	7139.086	14.14	ppb	2.3	200	
78	Se	115	H2	3438.662	6.81	ppb	0.7	500	
98	Mo	115	NoGas	2528.076	5.01	ppb	1.2	200	
107	Ag	115	NoGas	273.933	0.54	ppb	2.8	50	
111	Cd	115	NoGas	4218.634	8.35	ppb	1.1	200	
118	Sn	115	NoGas	4196.372	8.31	ppb	0.8	200	
121	Sb	115	NoGas	337.586	0.67	ppb	0.5	25	
125	Te	115	NoGas	48.496	0.1	ppb	8.9	200	
133	Cs	115	NoGas	2422.768	4.8	ppb	1.8	200	
137	Ba	115	NoGas	125152.245	247.83	ppb	1.1	500	
205	Tl	209	NoGas	328.497	0.65	ppb	3.6	200	
208	Pb	209	NoGas	12471.688	24.7	ppb	1.7	500	
232	Th	209	NoGas	7413.700	14.68	ppb	1.2	200	
238	U	209	NoGas	5871.888	11.63	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	506609.20	0.4	115.25	60	120	
45	Sc	NoGas	2606081.08	3941574.43	0.6	151.25	60	120	FAIL
45	Sc	H2	614754.01	875776.16	0.4	142.46	60	120	FAIL
45	Sc	He	79590.76	111400.54	0.7	139.97	60	120	FAIL
72	Ge	NoGas	673042.21	793721.79	0.5	117.93	60	120	
72	Ge	H2	217511.55	230070.77	0.3	105.77	60	120	
72	Ge	He	62823.63	70560.78	1.6	112.32	60	120	
115	In	NoGas	2281326.88	2344318.86	1.1	102.76	60	120	
115	In	H2	1387316.51	1416911.12	0.5	102.13	60	120	
115	In	He	249482.25	250829.15	0.2	100.54	60	120	
159	Tb	NoGas	2793439.75	3170794.80	0.8	113.51	60	120	
209	Bi	NoGas	2683555.24	2678791.77	1.0	99.82	60	120	

Sample Name L34445-04

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:14:15 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1147.755	2.25	ppb	0.7	200	
11	B	6	NoGas	15594.992	30.58	ppb	0.4	20	OCAL
27	Al	72	NoGas	22033038.748	43202.04	ppb	1.0	1000	OCAL
51	V	45	He	75081.439	147.22	ppb	0.4	200	
52	Cr	45	He	88031.787	172.61	ppb	0.8	200	
55	Mn	72	NoGas	1385722.181	2717.1	ppb	0.6	200	OCAL
56	Fe	45	H2	18385006.348	36049.03	ppb	0.5	1000	OCAL
59	Co	72	NoGas	9845.207	19.3	ppb	0.5	200	
60	Ni	45	He	55975.968	109.76	ppb	0.5	500	
63	Cu	45	He	26121.735	51.22	ppb	0.2	500	
66	Zn	72	NoGas	370858.988	727.17	ppb	0.6	1000	
75	As	115	He	8924.463	17.5	ppb	0.6	200	
78	Se	115	H2	4224.307	8.28	ppb	1.7	500	
98	Mo	115	NoGas	6182.789	12.12	ppb	0.4	200	
107	Ag	115	NoGas	1567.097	3.07	ppb	0.2	50	
111	Cd	115	NoGas	12281.609	24.08	ppb	0.9	200	
118	Sn	115	NoGas	4317.269	8.46	ppb	0.6	200	
121	Sb	115	NoGas	747.562	1.47	ppb	0.9	25	
125	Te	115	NoGas	75.990	0.15	ppb	9.6	200	
133	Cs	115	NoGas	2909.872	5.71	ppb	1.4	200	
137	Ba	115	NoGas	171700.906	336.67	ppb	1.4	500	
205	Tl	209	NoGas	459.155	0.9	ppb	2.5	200	
208	Pb	209	NoGas	15056.524	29.52	ppb	0.6	500	
232	Th	209	NoGas	8320.746	16.32	ppb	0.8	200	
238	U	209	NoGas	11733.941	23.01	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	518881.23	0.2	118.04	60	120	
45	Sc	NoGas	2606081.08	4191637.75	0.4	160.84	60	120	FAIL
45	Sc	H2	614754.01	926757.05	0.7	150.75	60	120	FAIL
45	Sc	He	79590.76	119232.36	0.8	149.81	60	120	FAIL
72	Ge	NoGas	673042.21	794611.01	0.4	118.06	60	120	
72	Ge	H2	217511.55	227768.69	1.0	104.72	60	120	
72	Ge	He	62823.63	71672.87	0.5	114.09	60	120	
115	In	NoGas	2281326.88	2337709.88	1.0	102.47	60	120	
115	In	H2	1387316.51	1406339.01	0.7	101.37	60	120	
115	In	He	249482.25	247613.51	0.7	99.25	60	120	
159	Tb	NoGas	2793439.75	3244609.38	0.8	116.15	60	120	
209	Bi	NoGas	2683555.24	2659149.97	0.5	99.09	60	120	

Sample Name	CCV
File Name	022_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:16:17 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	104.861	0.6	100	104.86	
11	B	6	NoGas	10.370	1.0	10	103.7	
27	Al	72	NoGas	513.436	1.2	500	102.69	
51	V	45	He	101.076	0.6	100	101.08	
52	Cr	45	He	101.181	0.3	100	101.18	
55	Mn	72	NoGas	102.456	0.9	100	102.46	
56	Fe	45	H2	513.998	1.1	500	102.8	
59	Co	72	NoGas	102.850	0.5	100	102.85	
60	Ni	45	He	252.564	0.3	250	101.03	
63	Cu	45	He	255.489	0.3	250	102.2	
66	Zn	72	NoGas	509.749	0.9	500	101.95	
75	As	115	He	103.325	1.3	100	103.32	
78	Se	115	H2	254.090	1.3	250	101.64	
98	Mo	115	NoGas	101.266	0.8	100	101.27	
107	Ag	115	NoGas	25.417	1.1	25	101.67	
111	Cd	115	NoGas	98.203	1.4	100	98.2	
118	Sn	115	NoGas	100.118	1.3	100	100.12	
121	Sb	115	NoGas	12.354	1.1	12.5	98.83	
125	Te	115	NoGas	98.043	0.7	100	98.04	
133	Cs	115	NoGas	100.596	1.3	100	100.6	
137	Ba	115	NoGas	250.571	1.1	250	100.23	
205	Tl	209	NoGas	101.850	1.2	100	101.85	
208	Pb	209	NoGas	254.990	0.8	250	102	
232	Th	209	NoGas	103.161	0.6	100	103.16	
238	U	209	NoGas	101.884	0.8	100	101.88	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	439573.77	436645.19	0.4	99.33	60	120	
Sc	45	NoGas	2606081.08	2844298.50	0.5	109.14	60	120	
Sc	45	H2	614754.01	659860.09	1.1	107.34	60	120	
Sc	45	He	79590.76	84363.02	0.4	106	60	120	
Ge	72	NoGas	673042.21	727074.59	0.5	108.03	60	120	
Ge	72	H2	217511.55	236967.57	1.1	108.94	60	120	
Ge	72	He	62823.63	66485.80	0.4	105.83	60	120	
In	115	NoGas	2281326.88	2410697.36	0.4	105.67	60	120	
In	115	H2	1387316.51	1523714.55	1.3	109.83	60	120	
In	115	He	249482.25	268061.95	0.5	107.45	60	120	
Tb	159	NoGas	2793439.75	2909587.45	0.4	104.16	60	120	
Bi	209	NoGas	2683555.24	2902099.54	0.5	108.14	60	120	

Sample Name	CCB
File Name	023_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:18:12 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.068	16.1	0.15	
11	B	6	NoGas	-0.070	N/A	1.5	
27	Al	72	NoGas	0.379	14.5	3	
51	V	45	He	-0.554	N/A	0.6	
52	Cr	45	He	0.009	23.2	1.5	
55	Mn	72	NoGas	0.042	20.6	1.5	
59	Co	72	NoGas	0.013	44.0	0.15	
60	Ni	45	He	0.028	10.6	1.8	
63	Cu	45	He	-0.016	N/A	1.5	
66	Zn	72	NoGas	0.117	42.1	6	
75	As	115	He	0.051	89.2	0.6	
78	Se	115	H2	0.010	43.2	0.3	
107	Ag	115	NoGas	0.004	40.6	0.15	
111	Cd	115	NoGas	0.013	21.4	0.3	
118	Sn	115	NoGas	0.028	8.2	0.3	
121	Sb	115	NoGas	0.036	18.1	1.2	
125	Te	115	NoGas	0.022	45.3	3	
133	Cs	115	NoGas	0.018	34.6	0.6	
137	Ba	115	NoGas	0.032	44.1	1.5	
205	Tl	209	NoGas	0.021	24.9	0.3	
208	Pb	209	NoGas	0.045	40.0	0.3	
232	Th	209	NoGas	0.021	32.2	3	
238	U	209	NoGas	0.013	41.1	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	437771.03	0.2	99.59	60	120	
45	Sc	NoGas	2606081.08	2816776.00	0.6	108.08	60	120	
45	Sc	H2	614754.01	660595.20	1.4	107.46	60	120	
45	Sc	He	79590.76	84896.20	0.2	106.67	60	120	
72	Ge	NoGas	673042.21	721619.28	0.7	107.22	60	120	
72	Ge	H2	217511.55	236587.64	1.0	108.77	60	120	
72	Ge	He	62823.63	66284.70	0.7	105.51	60	120	
115	In	NoGas	2281326.88	2399422.60	0.6	105.18	60	120	
115	In	H2	1387316.51	1489895.18	1.7	107.39	60	120	
115	In	He	249482.25	261437.35	0.9	104.79	60	120	
159	Tb	NoGas	2793439.75	2892325.02	0.9	103.54	60	120	
209	Bi	NoGas	2683555.24	2770960.51	1.0	103.26	60	120	

Sample Name L34446-01

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:20:09 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1057.584	2.07	ppb	2.0	200	
11	B	6	NoGas	10380.563	20.35	ppb	1.1	20	OCAL
27	Al	72	NoGas	24285033.278	47617.71	ppb	0.7	1000	OCAL
51	V	45	He	22164.070	43.46	ppb	1.4	200	
52	Cr	45	He	19118.220	37.49	ppb	1.2	200	
55	Mn	72	NoGas	3664210.416	7184.73	ppb	0.9	200	OCAL
56	Fe	45	H2	24606887.093	48248.8	ppb	0.5	1000	OCAL
59	Co	72	NoGas	15792.128	30.96	ppb	0.9	200	
60	Ni	45	He	20710.167	40.61	ppb	1.6	500	
63	Cu	45	He	16416.104	32.19	ppb	1.1	500	
66	Zn	72	NoGas	97197.005	190.58	ppb	1.0	1000	
75	As	115	He	6192.395	12.14	ppb	1.4	200	
78	Se	115	H2	182.827	0.36	ppb	3.0	500	
98	Mo	115	NoGas	566.186	1.11	ppb	1.3	200	
107	Ag	115	NoGas	55.880	0.11	ppb	1.8	50	
111	Cd	115	NoGas	651.331	1.28	ppb	2.2	200	
118	Sn	115	NoGas	3982.154	7.81	ppb	1.1	200	
121	Sb	115	NoGas	210.134	0.41	ppb	2.0	25	
125	Te	115	NoGas	33.103	0.06	ppb	3.8	200	
133	Cs	115	NoGas	4068.253	7.98	ppb	1.7	200	
137	Ba	115	NoGas	252835.491	495.76	ppb	1.1	500	
205	Tl	209	NoGas	161.415	0.32	ppb	4.5	200	
208	Pb	209	NoGas	33157.281	65.01	ppb	1.2	500	
232	Th	209	NoGas	7233.602	14.18	ppb	0.9	200	
238	U	209	NoGas	907.600	1.78	ppb	1.1	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	601429.68	0.2	136.82	60	120	FAIL
45	Sc	NoGas	2606081.08	4456015.10	1.0	170.99	60	120	FAIL
45	Sc	H2	614754.01	980101.77	0.5	159.43	60	120	FAIL
45	Sc	He	79590.76	124780.64	0.9	156.78	60	120	FAIL
72	Ge	NoGas	673042.21	816181.34	0.4	121.27	60	120	FAIL
72	Ge	H2	217511.55	225099.31	1.0	103.49	60	120	
72	Ge	He	62823.63	69176.18	0.2	110.11	60	120	
115	In	NoGas	2281326.88	2296554.51	0.6	100.67	60	120	
115	In	H2	1387316.51	1398035.12	1.0	100.77	60	120	
115	In	He	249482.25	244016.43	0.6	97.81	60	120	
159	Tb	NoGas	2793439.75	3102414.18	1.3	111.06	60	120	
209	Bi	NoGas	2683555.24	2641593.85	1.3	98.44	60	120	

Sample Name L34446-02

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:22:11 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	565.772	1.12	ppb	1.3	200	
11	B	6	NoGas	12263.420	24.28	ppb	0.6	20	OCAL
27	Al	72	NoGas	4133153.521	8184.46	ppb	0.4	1000	OCAL
51	V	45	He	21160.841	41.9	ppb	0.5	200	
52	Cr	45	He	83014.012	164.38	ppb	0.7	200	
55	Mn	72	NoGas	279996.583	554.45	ppb	0.3	200	OCAL
56	Fe	45	H2	8842787.179	17510.47	ppb	0.9	1000	OCAL
59	Co	72	NoGas	3005.376	5.95	ppb	0.2	200	
60	Ni	45	He	79097.860	156.63	ppb	0.7	500	
63	Cu	45	He	26128.184	51.74	ppb	0.8	500	
66	Zn	72	NoGas	148293.858	293.65	ppb	0.6	1000	
75	As	115	He	6359.201	12.59	ppb	2.5	200	
78	Se	115	H2	6582.383	13.03	ppb	1.3	500	
98	Mo	115	NoGas	1578.749	3.13	ppb	0.7	200	
107	Ag	115	NoGas	188.115	0.37	ppb	1.3	50	
111	Cd	115	NoGas	3565.768	7.06	ppb	0.8	200	
118	Sn	115	NoGas	3593.570	7.12	ppb	0.3	200	
121	Sb	115	NoGas	188.440	0.37	ppb	1.6	25	
125	Te	115	NoGas	22.358	0.04	ppb	10.7	200	
133	Cs	115	NoGas	1075.646	2.13	ppb	0.5	200	
137	Ba	115	NoGas	55210.169	109.33	ppb	0.9	500	
205	Tl	209	NoGas	204.044	0.4	ppb	1.8	200	
208	Pb	209	NoGas	4545.092	9	ppb	0.3	500	
232	Th	209	NoGas	5710.393	11.31	ppb	0.9	200	
238	U	209	NoGas	3962.125	7.85	ppb	0.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	420623.24	0.7	95.69	60	120	
45	Sc	NoGas	2606081.08	3278799.59	0.8	125.81	60	120	FAIL
45	Sc	H2	614754.01	739726.01	0.8	120.33	60	120	FAIL
45	Sc	He	79590.76	94434.66	1.2	118.65	60	120	
72	Ge	NoGas	673042.21	732277.54	0.6	108.8	60	120	
72	Ge	H2	217511.55	221688.29	0.9	101.92	60	120	
72	Ge	He	62823.63	70723.74	0.7	112.58	60	120	
115	In	NoGas	2281326.88	2299654.94	1.0	100.8	60	120	
115	In	H2	1387316.51	1398876.37	1.2	100.83	60	120	
115	In	He	249482.25	246318.94	1.0	98.73	60	120	
159	Tb	NoGas	2793439.75	3353170.84	1.4	120.04	60	120	FAIL
209	Bi	NoGas	2683555.24	2656127.53	1.4	98.98	60	120	

Sample Name L34446-03

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:24:12 PM

Sample Type Sample

Total Dilution 520.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	991.542	1.91	ppb	1.8	200	
11	B	6	NoGas	11682.877	22.47	ppb	0.6	20	OCAL
27	Al	72	NoGas	24364050.003	46853.94	ppb	0.4	1000	OCAL
51	V	45	He	21555.294	41.45	ppb	0.6	200	
52	Cr	45	He	19721.988	37.93	ppb	1.0	200	
55	Mn	72	NoGas	2537216.335	4879.26	ppb	0.8	200	OCAL
56	Fe	45	H2	22943021.828	44121.2	ppb	0.5	1000	OCAL
59	Co	72	NoGas	14846.213	28.55	ppb	0.1	200	
60	Ni	45	He	20064.140	38.58	ppb	0.3	500	
63	Cu	45	He	20891.517	40.18	ppb	0.7	500	
66	Zn	72	NoGas	115865.213	222.82	ppb	0.3	1000	
75	As	115	He	5538.990	10.65	ppb	1.2	200	
78	Se	115	H2	348.874	0.67	ppb	1.9	500	
98	Mo	115	NoGas	639.343	1.23	ppb	0.2	200	
107	Ag	115	NoGas	76.378	0.15	ppb	2.0	50	
111	Cd	115	NoGas	912.750	1.76	ppb	4.5	200	
118	Sn	115	NoGas	4053.451	7.8	ppb	0.4	200	
121	Sb	115	NoGas	149.667	0.29	ppb	2.4	25	
125	Te	115	NoGas	32.631	0.06	ppb	22.3	200	
133	Cs	115	NoGas	3664.723	7.05	ppb	0.4	200	
137	Ba	115	NoGas	217268.769	417.82	ppb	0.8	500	
205	Tl	209	NoGas	174.156	0.34	ppb	3.5	200	
208	Pb	209	NoGas	22388.926	43.06	ppb	0.8	500	
232	Th	209	NoGas	6325.359	12.16	ppb	0.5	200	
238	U	209	NoGas	1019.212	1.96	ppb	0.7	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	594508.76	0.2	135.25	60	120	FAIL
45	Sc	NoGas	2606081.08	4214265.39	1.1	161.71	60	120	FAIL
45	Sc	H2	614754.01	937343.19	0.9	152.47	60	120	FAIL
45	Sc	He	79590.76	120810.72	0.2	151.79	60	120	FAIL
72	Ge	NoGas	673042.21	767859.80	0.8	114.09	60	120	
72	Ge	H2	217511.55	216547.38	1.5	99.56	60	120	
72	Ge	He	62823.63	66161.89	1.1	105.31	60	120	
115	In	NoGas	2281326.88	2278329.42	1.4	99.87	60	120	
115	In	H2	1387316.51	1355839.60	1.0	97.73	60	120	
115	In	He	249482.25	238054.74	0.5	95.42	60	120	
159	Tb	NoGas	2793439.75	3078527.59	0.8	110.21	60	120	
209	Bi	NoGas	2683555.24	2634494.55	1.4	98.17	60	120	

Sample Name L34446-04

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:26:15 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1571.786	3.08	ppb	1.7	200	
11	B	6	NoGas	21992.965	43.12	ppb	1.7	20	OCAL
27	Al	72	NoGas	16387885.914	32133.11	ppb	1.1	1000	OCAL
51	V	45	He	58005.691	113.74	ppb	1.3	200	
52	Cr	45	He	24041.989	47.14	ppb	0.7	200	
55	Mn	72	NoGas	6491289.466	12728.02	ppb	1.1	200	OCAL
56	Fe	45	H2	27603927.565	54125.35	ppb	0.1	1000	OCAL
59	Co	72	NoGas	36829.107	72.21	ppb	1.3	200	
60	Ni	45	He	83969.023	164.64	ppb	1.3	500	
63	Cu	45	He	32393.687	63.52	ppb	1.1	500	
66	Zn	72	NoGas	262669.500	515.04	ppb	1.2	1000	
75	As	115	He	18992.555	37.24	ppb	2.7	200	
78	Se	115	H2	894.746	1.75	ppb	2.2	500	
98	Mo	115	NoGas	6165.018	12.09	ppb	0.9	200	
107	Ag	115	NoGas	392.603	0.77	ppb	2.6	50	
111	Cd	115	NoGas	18521.250	36.32	ppb	1.7	200	
118	Sn	115	NoGas	4109.039	8.06	ppb	1.3	200	
121	Sb	115	NoGas	707.078	1.39	ppb	1.6	25	
125	Te	115	NoGas	65.761	0.13	ppb	15.9	200	
133	Cs	115	NoGas	3028.463	5.94	ppb	1.4	200	
137	Ba	115	NoGas	476972.539	935.24	ppb	1.2	500	OCAL
205	Tl	209	NoGas	474.689	0.93	ppb	2.6	200	
208	Pb	209	NoGas	40189.504	78.8	ppb	1.1	500	
232	Th	209	NoGas	7432.102	14.57	ppb	0.9	200	
238	U	209	NoGas	7023.009	13.77	ppb	0.8	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	460295.61	0.3	104.71	60	120	
45	Sc	NoGas	2606081.08	4595929.40	1.0	176.35	60	120	FAIL
45	Sc	H2	614754.01	997035.00	0.3	162.18	60	120	FAIL
45	Sc	He	79590.76	126075.22	0.4	158.4	60	120	FAIL
72	Ge	NoGas	673042.21	826614.95	0.5	122.82	60	120	FAIL
72	Ge	H2	217511.55	223528.94	0.6	102.77	60	120	
72	Ge	He	62823.63	69155.08	0.8	110.08	60	120	
115	In	NoGas	2281326.88	2325754.69	1.2	101.95	60	120	
115	In	H2	1387316.51	1396982.31	0.2	100.7	60	120	
115	In	He	249482.25	242916.43	0.5	97.37	60	120	
159	Tb	NoGas	2793439.75	3199680.71	0.6	114.54	60	120	
209	Bi	NoGas	2683555.24	2681056.14	1.2	99.91	60	120	

Sample Name L34446-05

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:28:17 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1118.615	2.22	ppb	1.8	200	
11	B	6	NoGas	20837.354	41.26	ppb	0.8	20	OCAL
27	Al	72	NoGas	5514168.164	10919.14	ppb	0.6	1000	OCAL
51	V	45	He	8041.750	15.92	ppb	0.5	200	
52	Cr	45	He	7378.669	14.61	ppb	1.0	200	
55	Mn	72	NoGas	17280365.777	34218.55	ppb	1.1	200	OCAL
56	Fe	45	H2	24750518.139	49010.93	ppb	0.4	1000	OCAL
59	Co	72	NoGas	14934.011	29.57	ppb	0.8	200	
60	Ni	45	He	33459.683	66.26	ppb	1.0	500	
63	Cu	45	He	15590.864	30.87	ppb	0.3	500	
66	Zn	72	NoGas	82550.067	163.46	ppb	0.8	1000	
75	As	115	He	6713.431	13.29	ppb	2.2	200	
78	Se	115	H2	429.235	0.85	ppb	2.0	500	
98	Mo	115	NoGas	11585.931	22.94	ppb	1.0	200	
107	Ag	115	NoGas	100.981	0.2	ppb	1.2	50	
111	Cd	115	NoGas	526.505	1.04	ppb	5.5	200	
118	Sn	115	NoGas	3737.130	7.4	ppb	0.4	200	
121	Sb	115	NoGas	183.013	0.36	ppb	1.8	25	
125	Te	115	NoGas	29.370	0.06	ppb	7.2	200	
133	Cs	115	NoGas	3053.218	6.05	ppb	0.5	200	
137	Ba	115	NoGas	165202.784	327.13	ppb	0.4	500	
205	Tl	209	NoGas	319.167	0.63	ppb	2.3	200	
208	Pb	209	NoGas	17760.035	35.17	ppb	0.9	500	
232	Th	209	NoGas	6009.876	11.9	ppb	0.8	200	
238	U	209	NoGas	678.381	1.34	ppb	0.9	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	404846.55	0.5	92.1	60	120	
45	Sc	NoGas	2606081.08	3983450.40	0.5	152.85	60	120	FAIL
45	Sc	H2	614754.01	868383.73	0.3	141.26	60	120	FAIL
45	Sc	He	79590.76	109496.42	1.4	137.57	60	120	FAIL
72	Ge	NoGas	673042.21	764237.88	0.4	113.55	60	120	
72	Ge	H2	217511.55	214669.96	0.7	98.69	60	120	
72	Ge	He	62823.63	63693.12	2.2	101.38	60	120	
115	In	NoGas	2281326.88	2279328.10	1.1	99.91	60	120	
115	In	H2	1387316.51	1361299.77	1.2	98.12	60	120	
115	In	He	249482.25	234099.50	0.9	93.83	60	120	
159	Tb	NoGas	2793439.75	3024791.20	1.0	108.28	60	120	
209	Bi	NoGas	2683555.24	2616703.02	1.5	97.51	60	120	

Sample Name L34446-06

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:30:20 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	924.123	1.83	ppb	1.7	200	
11	B	6	NoGas	20844.547	41.28	ppb	1.0	20	OCAL
27	Al	72	NoGas	4697365.022	9301.71	ppb	0.6	1000	OCAL
51	V	45	He	6737.972	13.34	ppb	0.1	200	
52	Cr	45	He	5471.154	10.83	ppb	1.0	200	
55	Mn	72	NoGas	6426728.681	12726.2	ppb	0.9	200	OCAL
56	Fe	45	H2	26706039.165	52883.25	ppb	0.3	1000	OCAL
59	Co	72	NoGas	14812.064	29.33	ppb	0.5	200	
60	Ni	45	He	31328.651	62.04	ppb	7.4	500	
63	Cu	45	He	12120.142	24	ppb	0.6	500	
66	Zn	72	NoGas	37007.267	73.28	ppb	0.4	1000	
75	As	115	He	3942.413	7.81	ppb	0.8	200	
78	Se	115	H2	454.316	0.9	ppb	0.5	500	
98	Mo	115	NoGas	1063.362	2.11	ppb	0.3	200	
107	Ag	115	NoGas	61.155	0.12	ppb	1.0	50	
111	Cd	115	NoGas	514.844	1.02	ppb	4.7	200	
118	Sn	115	NoGas	3687.676	7.3	ppb	0.9	200	
121	Sb	115	NoGas	86.639	0.17	ppb	1.2	25	
125	Te	115	NoGas	22.080	0.04	ppb	10.9	200	
133	Cs	115	NoGas	3167.623	6.27	ppb	0.6	200	
137	Ba	115	NoGas	51805.790	102.59	ppb	0.8	500	
205	Tl	209	NoGas	325.475	0.64	ppb	2.8	200	
208	Pb	209	NoGas	13557.101	26.85	ppb	0.6	500	
232	Th	209	NoGas	5301.025	10.5	ppb	0.9	200	
238	U	209	NoGas	524.153	1.04	ppb	1.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	394224.94	0.4	89.68	60	120	
45	Sc	NoGas	2606081.08	3799654.02	0.9	145.8	60	120	FAIL
45	Sc	H2	614754.01	839311.94	0.4	136.53	60	120	FAIL
45	Sc	He	79590.76	105452.35	1.0	132.49	60	120	FAIL
72	Ge	NoGas	673042.21	756117.83	0.4	112.34	60	120	
72	Ge	H2	217511.55	213817.75	0.7	98.3	60	120	
72	Ge	He	62823.63	62207.74	1.4	99.02	60	120	
115	In	NoGas	2281326.88	2263977.06	1.2	99.24	60	120	
115	In	H2	1387316.51	1355934.39	0.9	97.74	60	120	
115	In	He	249482.25	231640.27	1.6	92.85	60	120	
159	Tb	NoGas	2793439.75	2983479.95	1.5	106.8	60	120	
209	Bi	NoGas	2683555.24	2618376.15	1.9	97.57	60	120	

Sample Name L34446-07

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:32:23 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1171.718	2.3	ppb	0.9	200	
11	B	6	NoGas	16996.100	33.33	ppb	0.8	20	OCAL
27	Al	72	NoGas	9564259.096	18753.45	ppb	0.8	1000	OCAL
51	V	45	He	10441.680	20.47	ppb	0.5	200	
52	Cr	45	He	9349.775	18.33	ppb	0.2	200	
55	Mn	72	NoGas	10154127.322	19910.05	ppb	1.1	200	OCAL
56	Fe	45	H2	25245466.049	49500.91	ppb	0.7	1000	OCAL
59	Co	72	NoGas	16085.042	31.54	ppb	0.9	200	
60	Ni	45	He	28540.251	55.96	ppb	0.8	500	
63	Cu	45	He	19428.191	38.09	ppb	0.7	500	
66	Zn	72	NoGas	131841.888	258.51	ppb	0.8	1000	
75	As	115	He	12041.484	23.61	ppb	1.5	200	
78	Se	115	H2	840.282	1.65	ppb	0.4	500	
98	Mo	115	NoGas	1057.475	2.07	ppb	0.7	200	
107	Ag	115	NoGas	151.813	0.3	ppb	1.0	50	
111	Cd	115	NoGas	732.158	1.44	ppb	1.8	200	
118	Sn	115	NoGas	3984.436	7.81	ppb	0.7	200	
121	Sb	115	NoGas	280.566	0.55	ppb	0.9	25	
125	Te	115	NoGas	23.987	0.05	ppb	9.5	200	
133	Cs	115	NoGas	3095.239	6.07	ppb	0.5	200	
137	Ba	115	NoGas	402151.937	788.53	ppb	0.5	500	OCAL
205	Tl	209	NoGas	276.625	0.54	ppb	0.8	200	
208	Pb	209	NoGas	28830.276	56.53	ppb	0.6	500	
232	Th	209	NoGas	6929.641	13.59	ppb	0.5	200	
238	U	209	NoGas	590.902	1.16	ppb	1.4	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	417461.45	0.7	94.97	60	120	
45	Sc	NoGas	2606081.08	4123964.14	1.1	158.24	60	120	FAIL
45	Sc	H2	614754.01	911767.95	1.4	148.31	60	120	FAIL
45	Sc	He	79590.76	116284.33	0.7	146.1	60	120	FAIL
72	Ge	NoGas	673042.21	759572.50	0.5	112.86	60	120	
72	Ge	H2	217511.55	213600.29	1.9	98.2	60	120	
72	Ge	He	62823.63	65161.86	1.2	103.72	60	120	
115	In	NoGas	2281326.88	2282338.55	1.7	100.04	60	120	
115	In	H2	1387316.51	1356490.99	1.5	97.78	60	120	
115	In	He	249482.25	237769.97	0.4	95.31	60	120	
159	Tb	NoGas	2793439.75	3055101.48	1.1	109.37	60	120	
209	Bi	NoGas	2683555.24	2644148.09	1.2	98.53	60	120	

Sample Name L34446-07MS

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:34:25 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	29082.357	57.02	ppb	1.4	200	
11	B	6	NoGas	22781.222	44.67	ppb	0.8	20	OCAL
27	Al	72	NoGas	10243591.027	20085.47	ppb	1.4	1000	OCAL
51	V	45	He	27989.684	54.88	ppb	0.5	200	
52	Cr	45	He	28804.190	56.48	ppb	0.7	200	
55	Mn	72	NoGas	11423704.779	22399.42	ppb	1.3	200	OCAL
56	Fe	45	H2	26474438.457	51910.66	ppb	0.2	1000	OCAL
59	Co	72	NoGas	40940.330	80.28	ppb	1.1	200	
60	Ni	45	He	51890.498	101.75	ppb	0.9	500	
63	Cu	45	He	36588.922	71.74	ppb	0.8	500	
66	Zn	72	NoGas	160138.865	314	ppb	1.2	1000	
75	As	115	He	40123.094	78.67	ppb	1.0	200	
78	Se	115	H2	14225.427	27.89	ppb	0.3	500	
98	Mo	115	NoGas	24496.903	48.03	ppb	0.7	200	
107	Ag	115	NoGas	5302.342	10.4	ppb	1.0	50	
111	Cd	115	NoGas	26658.056	52.27	ppb	0.9	200	
118	Sn	115	NoGas	22013.589	43.16	ppb	1.1	200	
121	Sb	115	NoGas	1293.759	2.54	ppb	0.9	25	
125	Te	115	NoGas	12352.538	24.22	ppb	0.2	200	
133	Cs	115	NoGas	13500.331	26.47	ppb	1.3	200	
137	Ba	115	NoGas	483768.796	948.57	ppb	1.2	500	OCAL
205	Tl	209	NoGas	27149.034	53.23	ppb	1.6	200	
208	Pb	209	NoGas	58924.633	115.54	ppb	0.9	500	
232	Th	209	NoGas	18452.156	36.18	ppb	1.1	200	
238	U	209	NoGas	15231.412	29.87	ppb	0.7	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	415729.86	1.3	94.58	60	120	
45	Sc	NoGas	2606081.08	4103084.56	0.9	157.44	60	120	FAIL
45	Sc	H2	614754.01	902799.10	0.9	146.86	60	120	FAIL
45	Sc	He	79590.76	114395.91	0.8	143.73	60	120	FAIL
72	Ge	NoGas	673042.21	763504.07	1.4	113.44	60	120	
72	Ge	H2	217511.55	212650.59	0.5	97.77	60	120	
72	Ge	He	62823.63	64528.86	1.0	102.71	60	120	
115	In	NoGas	2281326.88	2259334.54	1.6	99.04	60	120	
115	In	H2	1387316.51	1367858.24	0.8	98.6	60	120	
115	In	He	249482.25	237276.73	1.0	95.11	60	120	
159	Tb	NoGas	2793439.75	3067385.57	0.9	109.81	60	120	
209	Bi	NoGas	2683555.24	2631007.32	1.1	98.04	60	120	

Sample Name L34446-07MSD

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:36:29 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	29593.931	58.03	ppb	1.5	200	
11	B	6	NoGas	22824.181	44.75	ppb	0.8	20	OCAL
27	Al	72	NoGas	10770983.923	21119.58	ppb	1.9	1000	OCAL
51	V	45	He	28537.187	55.96	ppb	1.0	200	
52	Cr	45	He	27157.966	53.25	ppb	0.7	200	
55	Mn	72	NoGas	13252931.525	25986.14	ppb	1.4	200	OCAL
56	Fe	45	H2	27293309.199	53516.29	ppb	0.2	1000	OCAL
59	Co	72	NoGas	42594.774	83.52	ppb	1.6	200	
60	Ni	45	He	51857.972	101.68	ppb	0.7	500	
63	Cu	45	He	37079.346	72.7	ppb	0.6	500	
66	Zn	72	NoGas	169958.823	333.25	ppb	1.4	1000	
75	As	115	He	41913.594	82.18	ppb	1.1	200	
78	Se	115	H2	13831.820	27.12	ppb	1.1	500	
98	Mo	115	NoGas	25692.133	50.38	ppb	1.8	200	
107	Ag	115	NoGas	5439.671	10.67	ppb	0.7	50	
111	Cd	115	NoGas	27617.410	54.15	ppb	1.6	200	
118	Sn	115	NoGas	23056.339	45.21	ppb	1.9	200	
121	Sb	115	NoGas	1276.933	2.5	ppb	0.3	25	
125	Te	115	NoGas	12590.863	24.69	ppb	0.1	200	
133	Cs	115	NoGas	13864.496	27.18	ppb	1.3	200	
137	Ba	115	NoGas	597751.297	1172.06	ppb	1.9	500	OCAL
205	Tl	209	NoGas	27828.262	54.56	ppb	1.6	200	
208	Pb	209	NoGas	60787.238	119.19	ppb	1.9	500	
232	Th	209	NoGas	18921.399	37.1	ppb	2.0	200	
238	U	209	NoGas	15762.404	30.91	ppb	2.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	409660.86	10.5	93.2	60	120	
45	Sc	NoGas	2606081.08	4100559.28	8.5	157.35	60	120	FAIL
45	Sc	H2	614754.01	906608.30	0.5	147.47	60	120	FAIL
45	Sc	He	79590.76	115188.81	0.7	144.73	60	120	FAIL
72	Ge	NoGas	673042.21	744887.37	10.6	110.67	60	120	
72	Ge	H2	217511.55	209771.10	1.1	96.44	60	120	
72	Ge	He	62823.63	63968.75	1.1	101.82	60	120	
115	In	NoGas	2281326.88	2186962.05	14.1	95.86	60	120	
115	In	H2	1387316.51	1354856.19	0.5	97.66	60	120	
115	In	He	249482.25	233859.95	1.4	93.74	60	120	
159	Tb	NoGas	2793439.75	2982201.13	12.2	106.76	60	120	
209	Bi	NoGas	2683555.24	2561943.65	12.9	95.47	60	120	

Sample Name L34446-08

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:38:31 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	886.179	1.76	ppb	2.0	200	
11	B	6	NoGas	15378.598	30.45	ppb	0.9	20	OCAL
27	Al	72	NoGas	17520819.238	34694.69	ppb	0.8	1000	OCAL
51	V	45	He	18615.963	36.86	ppb	0.3	200	
52	Cr	45	He	17114.709	33.89	ppb	0.8	200	
55	Mn	72	NoGas	2022730.507	4005.41	ppb	0.7	200	OCAL
56	Fe	45	H2	19155374.460	37931.44	ppb	0.3	1000	OCAL
59	Co	72	NoGas	11702.135	23.17	ppb	0.6	200	
60	Ni	45	He	17366.511	34.39	ppb	0.8	500	
63	Cu	45	He	21536.030	42.65	ppb	0.6	500	
66	Zn	72	NoGas	97665.588	193.4	ppb	1.0	1000	
75	As	115	He	6815.669	13.5	ppb	3.7	200	
78	Se	115	H2	94.986	0.19	ppb	1.4	500	
98	Mo	115	NoGas	259.909	0.52	ppb	0.9	200	
107	Ag	115	NoGas	82.351	0.16	ppb	0.3	50	
111	Cd	115	NoGas	635.208	1.26	ppb	2.1	200	
118	Sn	115	NoGas	3807.191	7.54	ppb	0.6	200	
121	Sb	115	NoGas	137.522	0.27	ppb	1.2	25	
125	Te	115	NoGas	36.618	0.07	ppb	10.8	200	
133	Cs	115	NoGas	3246.290	6.43	ppb	0.5	200	
137	Ba	115	NoGas	115926.840	229.56	ppb	0.2	500	
205	Tl	209	NoGas	199.729	0.4	ppb	3.5	200	
208	Pb	209	NoGas	20890.900	41.37	ppb	0.7	500	
232	Th	209	NoGas	5450.474	10.79	ppb	0.7	200	
238	U	209	NoGas	581.263	1.15	ppb	0.4	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	508603.80	0.3	115.7	60	120	
45	Sc	NoGas	2606081.08	3856658.32	1.1	147.99	60	120	FAIL
45	Sc	H2	614754.01	849635.80	0.2	138.21	60	120	FAIL
45	Sc	He	79590.76	107472.38	0.6	135.03	60	120	FAIL
72	Ge	NoGas	673042.21	719190.89	0.7	106.86	60	120	
72	Ge	H2	217511.55	205626.44	0.7	94.54	60	120	
72	Ge	He	62823.63	62219.86	0.7	99.04	60	120	
115	In	NoGas	2281326.88	2215054.08	0.7	97.09	60	120	
115	In	H2	1387316.51	1310749.39	0.7	94.48	60	120	
115	In	He	249482.25	226062.19	0.4	90.61	60	120	
159	Tb	NoGas	2793439.75	2970023.49	1.1	106.32	60	120	
209	Bi	NoGas	2683555.24	2565092.88	1.1	95.59	60	120	

Sample Name	CCV
File Name	034_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:40:34 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	106.315	0.7	100	106.32	
11	B	6	NoGas	10.739	1.2	10	107.39	
27	Al	72	NoGas	506.314	1.0	500	101.26	
51	V	45	He	99.604	1.0	100	99.6	
52	Cr	45	He	99.950	0.9	100	99.95	
55	Mn	72	NoGas	101.718	1.2	100	101.72	
56	Fe	45	H2	503.130	1.5	500	100.63	
59	Co	72	NoGas	101.461	0.8	100	101.46	
60	Ni	45	He	250.079	0.8	250	100.03	
63	Cu	45	He	252.315	1.1	250	100.93	
66	Zn	72	NoGas	507.456	0.7	500	101.49	
75	As	115	He	100.978	1.1	100	100.98	
78	Se	115	H2	246.283	1.1	250	98.51	
98	Mo	115	NoGas	100.004	1.0	100	100	
107	Ag	115	NoGas	25.193	1.5	25	100.77	
111	Cd	115	NoGas	97.837	0.8	100	97.84	
118	Sn	115	NoGas	98.932	1.4	100	98.93	
121	Sb	115	NoGas	12.257	1.2	12.5	98.06	
125	Te	115	NoGas	97.731	1.3	100	97.73	
133	Cs	115	NoGas	99.477	1.4	100	99.48	
137	Ba	115	NoGas	250.141	0.8	250	100.06	
205	Tl	209	NoGas	101.322	0.6	100	101.32	
208	Pb	209	NoGas	254.395	0.9	250	101.76	
232	Th	209	NoGas	102.585	0.8	100	102.58	
238	U	209	NoGas	101.924	1.1	100	101.92	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	439573.77	411802.30	0.5	93.68	60	120	
Sc	45	NoGas	2606081.08	2707656.49	0.4	103.9	60	120	
Sc	45	H2	614754.01	622707.73	1.2	101.29	60	120	
Sc	45	He	79590.76	79664.39	1.3	100.09	60	120	
Ge	72	NoGas	673042.21	700368.71	0.8	104.06	60	120	
Ge	72	H2	217511.55	221556.13	0.5	101.86	60	120	
Ge	72	He	62823.63	62505.57	0.7	99.49	60	120	
In	115	NoGas	2281326.88	2353173.75	0.4	103.15	60	120	
In	115	H2	1387316.51	1455706.05	0.6	104.93	60	120	
In	115	He	249482.25	251524.44	1.2	100.82	60	120	
Tb	159	NoGas	2793439.75	2889919.54	0.4	103.45	60	120	
Bi	209	NoGas	2683555.24	2893068.84	0.9	107.81	60	120	

Sample Name	CCB
File Name	035_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:42:29 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.079	17.5	0.15	
11	B	6	NoGas	0.231	25.6	1.5	
27	Al	72	NoGas	0.326	12.8	3	
51	V	45	He	-0.706	N/A	0.6	
52	Cr	45	He	0.006	55.1	1.5	
55	Mn	72	NoGas	0.368	5.3	1.5	
59	Co	72	NoGas	0.014	21.3	0.15	
60	Ni	45	He	0.026	32.4	1.8	
63	Cu	45	He	-0.047	N/A	1.5	
66	Zn	72	NoGas	0.144	36.7	6	
75	As	115	He	0.041	42.9	0.6	
78	Se	115	H2	0.017	76.9	0.3	
107	Ag	115	NoGas	0.004	37.6	0.15	
111	Cd	115	NoGas	0.010	66.9	0.3	
118	Sn	115	NoGas	0.024	15.5	0.3	
121	Sb	115	NoGas	0.027	19.5	1.2	
125	Te	115	NoGas	0.007	120.8	3	
133	Cs	115	NoGas	0.018	27.4	0.6	
137	Ba	115	NoGas	0.037	30.6	1.5	
205	Tl	209	NoGas	0.031	27.0	0.3	
208	Pb	209	NoGas	0.058	29.4	0.3	
232	Th	209	NoGas	0.020	22.9	3	
238	U	209	NoGas	0.013	35.1	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	411298.99	0.6	93.57	60	120	
45	Sc	NoGas	2606081.08	2666240.17	0.5	102.31	60	120	
45	Sc	H2	614754.01	619648.95	0.5	100.8	60	120	
45	Sc	He	79590.76	79396.31	0.4	99.76	60	120	
72	Ge	NoGas	673042.21	691100.96	0.1	102.68	60	120	
72	Ge	H2	217511.55	220990.89	0.8	101.6	60	120	
72	Ge	He	62823.63	62122.78	0.5	98.88	60	120	
115	In	NoGas	2281326.88	2330419.95	0.5	102.15	60	120	
115	In	H2	1387316.51	1411682.51	1.2	101.76	60	120	
115	In	He	249482.25	244235.33	0.3	97.9	60	120	
159	Tb	NoGas	2793439.75	2810291.97	0.5	100.6	60	120	
209	Bi	NoGas	2683555.24	2729214.06	1.0	101.7	60	120	

Sample Name L34446-09

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:44:25 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	984.572	1.95	ppb	0.4	200	
11	B	6	NoGas	14693.198	29.1	ppb	0.9	20	OCAL
27	Al	72	NoGas	16932050.563	33528.81	ppb	0.6	1000	OCAL
51	V	45	He	17729.433	35.11	ppb	0.7	200	
52	Cr	45	He	18550.574	36.73	ppb	0.0	200	
55	Mn	72	NoGas	2374682.579	4702.34	ppb	0.7	200	OCAL
56	Fe	45	H2	20069692.197	39741.96	ppb	0.2	1000	OCAL
59	Co	72	NoGas	14826.550	29.36	ppb	0.5	200	
60	Ni	45	He	22490.787	44.54	ppb	0.1	500	
63	Cu	45	He	23928.737	47.38	ppb	1.2	500	
66	Zn	72	NoGas	117363.886	232.4	ppb	0.3	1000	
75	As	115	He	7280.087	14.42	ppb	1.1	200	
78	Se	115	H2	576.500	1.14	ppb	2.4	500	
98	Mo	115	NoGas	933.642	1.85	ppb	0.4	200	
107	Ag	115	NoGas	218.744	0.43	ppb	2.0	50	
111	Cd	115	NoGas	1410.442	2.79	ppb	3.3	200	
118	Sn	115	NoGas	3855.453	7.64	ppb	1.2	200	
121	Sb	115	NoGas	198.955	0.39	ppb	1.5	25	
125	Te	115	NoGas	40.098	0.08	ppb	13.6	200	
133	Cs	115	NoGas	2905.433	5.75	ppb	0.6	200	
137	Ba	115	NoGas	95217.330	188.55	ppb	1.0	500	
205	Tl	209	NoGas	225.013	0.45	ppb	3.9	200	
208	Pb	209	NoGas	27345.862	54.15	ppb	0.6	500	
232	Th	209	NoGas	5041.243	9.98	ppb	0.6	200	
238	U	209	NoGas	1267.512	2.51	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	514333.02	0.7	117.01	60	120	
45	Sc	NoGas	2606081.08	3821173.46	0.2	146.63	60	120	FAIL
45	Sc	H2	614754.01	845352.71	0.3	137.51	60	120	FAIL
45	Sc	He	79590.76	107222.81	0.8	134.72	60	120	FAIL
72	Ge	NoGas	673042.21	721344.56	0.3	107.18	60	120	
72	Ge	H2	217511.55	205923.14	0.6	94.67	60	120	
72	Ge	He	62823.63	62340.38	0.2	99.23	60	120	
115	In	NoGas	2281326.88	2181140.14	0.6	95.61	60	120	
115	In	H2	1387316.51	1315716.06	0.5	94.84	60	120	
115	In	He	249482.25	226631.52	0.3	90.84	60	120	
159	Tb	NoGas	2793439.75	2948137.52	1.3	105.54	60	120	
209	Bi	NoGas	2683555.24	2550136.91	0.4	95.03	60	120	

Sample Name L34446-09SDL

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:46:28 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	243.883	0.48	ppb	3.8	200	
11	B	6	NoGas	3666.256	7.26	ppb	0.4	20	
27	Al	72	NoGas	3565751.147	7060.89	ppb	0.6	1000	OCAL
51	V	45	He	4328.278	8.57	ppb	1.6	200	
52	Cr	45	He	4868.877	9.64	ppb	0.8	200	
55	Mn	72	NoGas	509680.067	1009.27	ppb	0.8	200	OCAL
56	Fe	45	H2	5361156.066	10616.15	ppb	0.3	1000	OCAL
59	Co	72	NoGas	3150.153	6.24	ppb	0.7	200	
60	Ni	45	He	6131.476	12.14	ppb	2.0	500	
63	Cu	45	He	6323.416	12.52	ppb	1.4	500	
66	Zn	72	NoGas	24788.624	49.09	ppb	0.2	1000	
75	As	115	He	1422.309	2.82	ppb	4.3	200	
78	Se	115	H2	96.528	0.19	ppb	3.9	500	
98	Mo	115	NoGas	177.315	0.35	ppb	2.3	200	
107	Ag	115	NoGas	43.002	0.08	ppb	3.4	50	
111	Cd	115	NoGas	271.612	0.54	ppb	6.7	200	
118	Sn	115	NoGas	516.559	1.02	ppb	0.9	200	
121	Sb	115	NoGas	30.650	0.06	ppb	4.8	25	
125	Te	115	NoGas	3.451	0.01	ppb	12.2	200	
133	Cs	115	NoGas	572.913	1.13	ppb	0.8	200	
137	Ba	115	NoGas	18687.880	37.01	ppb	0.8	500	
205	Tl	209	NoGas	44.733	0.09	ppb	2.3	200	
208	Pb	209	NoGas	5367.484	10.63	ppb	0.8	500	
232	Th	209	NoGas	971.806	1.92	ppb	0.7	200	
238	U	209	NoGas	243.590	0.48	ppb	1.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	428833.97	0.3	97.56	60	120	
45	Sc	NoGas	2606081.08	2916035.79	0.5	111.89	60	120	
45	Sc	H2	614754.01	671202.21	0.5	109.18	60	120	
45	Sc	He	79590.76	86409.46	0.6	108.57	60	120	
72	Ge	NoGas	673042.21	701989.99	0.3	104.3	60	120	
72	Ge	H2	217511.55	219943.11	0.2	101.12	60	120	
72	Ge	He	62823.63	63666.26	0.7	101.34	60	120	
115	In	NoGas	2281326.88	2324122.68	1.2	101.88	60	120	
115	In	H2	1387316.51	1406381.82	0.4	101.37	60	120	
115	In	He	249482.25	244775.88	1.5	98.11	60	120	
159	Tb	NoGas	2793439.75	2921485.44	1.0	104.58	60	120	
209	Bi	NoGas	2683555.24	2721474.82	0.4	101.41	60	120	

Sample Name	CCV
File Name	038_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:48:28 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	106.384	0.2	100	106.38	
11	B	6	NoGas	10.446	0.1	10	104.46	
27	Al	72	NoGas	499.562	0.8	500	99.91	
51	V	45	He	101.959	0.8	100	101.96	
52	Cr	45	He	102.425	0.7	100	102.42	
55	Mn	72	NoGas	101.472	0.9	100	101.47	
56	Fe	45	H2	512.076	0.9	500	102.42	
59	Co	72	NoGas	101.711	1.0	100	101.71	
60	Ni	45	He	256.723	0.7	250	102.69	
63	Cu	45	He	257.268	0.9	250	102.91	
66	Zn	72	NoGas	508.526	1.1	500	101.71	
75	As	115	He	104.615	0.8	100	104.62	
78	Se	115	H2	252.714	1.3	250	101.09	
98	Mo	115	NoGas	100.963	0.6	100	100.96	
107	Ag	115	NoGas	25.432	0.6	25	101.73	
111	Cd	115	NoGas	100.111	0.9	100	100.11	
118	Sn	115	NoGas	99.967	0.8	100	99.97	
121	Sb	115	NoGas	12.542	0.7	12.5	100.34	
125	Te	115	NoGas	100.131	0.3	100	100.13	
133	Cs	115	NoGas	100.717	0.6	100	100.72	
137	Ba	115	NoGas	252.357	0.3	250	100.94	
205	Tl	209	NoGas	102.162	1.0	100	102.16	
208	Pb	209	NoGas	257.465	0.8	250	102.99	
232	Th	209	NoGas	102.957	0.5	100	102.96	
238	U	209	NoGas	102.952	0.5	100	102.95	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	439573.77	404876.83	0.2	92.11	60	120	
Sc	45	NoGas	2606081.08	2658772.46	0.5	102.02	60	120	
Sc	45	H2	614754.01	616787.80	0.6	100.33	60	120	
Sc	45	He	79590.76	79504.77	0.7	99.89	60	120	
Ge	72	NoGas	673042.21	694510.16	0.6	103.19	60	120	
Ge	72	H2	217511.55	220422.52	0.5	101.34	60	120	
Ge	72	He	62823.63	62630.67	0.9	99.69	60	120	
In	115	NoGas	2281326.88	2320905.19	0.5	101.73	60	120	
In	115	H2	1387316.51	1455244.39	0.6	104.9	60	120	
In	115	He	249482.25	254082.32	0.3	101.84	60	120	
Tb	159	NoGas	2793439.75	2841278.15	0.8	101.71	60	120	
Bi	209	NoGas	2683555.24	2841571.69	0.2	105.89	60	120	

Sample Name	CCB
File Name	039_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:50:23 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.079	30.9	0.15	
11	B	6	NoGas	-0.061	N/A	1.5	
27	Al	72	NoGas	0.304	59.8	3	
51	V	45	He	-0.741	N/A	0.6	
52	Cr	45	He	0.013	7.6	1.5	
55	Mn	72	NoGas	0.174	4.3	1.5	
59	Co	72	NoGas	0.013	34.0	0.15	
60	Ni	45	He	0.028	23.3	1.8	
63	Cu	45	He	-0.021	N/A	1.5	
66	Zn	72	NoGas	0.155	42.9	6	
75	As	115	He	-0.174	N/A	0.6	
78	Se	115	H2	0.094	6.2	0.3	
107	Ag	115	NoGas	0.007	12.5	0.15	
111	Cd	115	NoGas	0.013	59.9	0.3	
118	Sn	115	NoGas	0.027	59.3	0.3	
121	Sb	115	NoGas	0.033	23.6	1.2	
125	Te	115	NoGas	0.047	55.0	3	
133	Cs	115	NoGas	0.018	28.0	0.6	
137	Ba	115	NoGas	0.032	45.9	1.5	
205	Tl	209	NoGas	0.033	26.6	0.3	
208	Pb	209	NoGas	0.064	33.1	0.3	
232	Th	209	NoGas	0.021	27.8	3	
238	U	209	NoGas	0.014	36.3	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	403573.95	0.3	91.81	60	120	
45	Sc	NoGas	2606081.08	2641048.09	0.4	101.34	60	120	
45	Sc	H2	614754.01	619312.13	0.6	100.74	60	120	
45	Sc	He	79590.76	79327.07	0.2	99.67	60	120	
72	Ge	NoGas	673042.21	689451.38	0.6	102.44	60	120	
72	Ge	H2	217511.55	220915.91	0.7	101.57	60	120	
72	Ge	He	62823.63	62276.85	0.8	99.13	60	120	
115	In	NoGas	2281326.88	2325563.54	0.6	101.94	60	120	
115	In	H2	1387316.51	1425966.30	0.4	102.79	60	120	
115	In	He	249482.25	247352.43	1.5	99.15	60	120	
159	Tb	NoGas	2793439.75	2795316.42	1.2	100.07	60	120	
209	Bi	NoGas	2683555.24	2716512.46	0.4	101.23	60	120	

ICP 3050

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-T-846
Group ID: MA-G-ICP_-3050
Method Ref: M6010B
SOP Ref: SOPII012

WG416259

ACZ Laboratories, Inc

Instrument ID: ICP7/8 AEB 1/16/17
Analyst: GSS
ACZ Dept: 33
Create Date: 01/16/2017 13:48
Start Date/Time: 1/16/17 2P
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	P 3050	Dilution
1	WG416259ICV	II161203-1			1	☑	1
2	WG416259ICB	NONE			1	☑	1
3	WG416259PQV	II161228-3			1	☑	1
4	WG416259ICSAB	II161206-1			1	☑	1
5	WG415785PBS	NONE			100	☑	100
6	WG415785LCSS2	PCN52708			100	☑	100
7	WG415785LCSSD2	PCN52708			100	☑	100
8	L34445-01	TP-6_7_9 (2-5)			101	☑	101
9	L34445-02	TP-12 (2-4)			101	☑	101
10	L34445-02SDL	NONE			1	☑	101
11	L34445-03	TP-15_16 (2-13)			101	☑	101
12	L34445-04	TP-20 (1-4)			102	☑	~~102~~ 510
13	WG416259CCV	II161221-2			1	☑	1
14	WG416259CCB	NONE			1	☑	1

GSS, 1/16/17
Y=A

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.

L34445-4 MS + MSD GSS, 1/16/17

Report Comments: Spike Added to WG, GSS 1/16/17

Internal Comments

AREV: AEB 1/16/17
Initials, Date

SREV: 1/17/17
Initials, Date

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	LEB
Date:	1/16/17
Approved By:	[illegible]
Date:	1/17/17

Work Group:	WG411259
Sample Type:	3050
Analysis Date:	1/16/17
Analyst:	LEB

Instrument Checklist	Yes	No	N / A
1) Is the correct run date associated with the workgroup?	✓		
2) Are all of the QC critera listed in LIMS within specified limits? **		✓	
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?	✓		
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
5) Is a current standard/reagent form attached to the workgroup?	✓		
6) Have all dilutions performed at the bench been checked off on the benchsheet?	✓		
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			✓
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?	✓		
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?	✓		
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
L34445-01	Y = 120.16%	Redo → 5x
L34445-04MSD	R = 27%	M3

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416259

Date Reported: 17-Jan-17
Run ID: R1493017
Date Analyzed: 16-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416259ICV

Tag:

Measured: 1/16/2017 2:32:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ALUMINUM	FOUND	2.057	1		mg/L	++	0.03	0.2			
SREV	ALUMINUM	REC	103	1		%	++	0.03	0.2			
SREV	ALUMINUM	RSD	0.7166	1		mg/L	++	0.03	0.15			
SREV	ANTIMONY	FOUND	4.144	1		mg/L	++	0.03	0.2			
SREV	ANTIMONY	REC	104	1		%	++	0.03	0.2			
SREV	ANTIMONY	RSD	0.8507	1		mg/L	++	0.03	0.15			
SREV	ARSENIC	FOUND	3.935	1		mg/L	++	0.04	0.2			
SREV	ARSENIC	REC	98	1		%	++	0.04	0.2			
SREV	ARSENIC	RSD	0.911	1		mg/L	++	0.04	0.2			
SREV	BARIUM	FOUND	1.975	1		mg/L	++	0.003	0.02			
SREV	BARIUM	REC	99	1		%	++	0.003	0.02			
SREV	BARIUM	RSD	0.0337	1		mg/L	++	0.003	0.015			
SREV	BERYLLIUM	FOUND	2.013	1		mg/L	++	0.01	0.05			
SREV	BERYLLIUM	REC	101	1		%	++	0.01	0.05			
SREV	BERYLLIUM	RSD	0.0527	1		mg/L	++	0.01	0.05			
SREV	BISMUTH	FOUND	1.989	1		mg/L	++	0.04	0.2			
SREV	BISMUTH	REC	99	1		%	++	0.04	0.2			
SREV	BISMUTH	RSD	0.3814	1		mg/L	++	0.04	0.2			
SREV	BORON	FOUND	2.073	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	104	1		%	++	0.01	0.05			
SREV	BORON	RSD	1.173	1		mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND	1.965	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND	1.968	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	REC	98	1		%	++	0.005	0.02			
SREV	CADMIUM	REC	98	1		%	++	0.005	0.02			
SREV	CADMIUM	RSD	1.114	1		mg/L	++	0.005	0.015			
SREV	CADMIUM	RSD	1.092	1		mg/L	++	0.005	0.015			
SREV	CALCIUM	FOUND	100.5	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	101	1		%	++	0.1	0.5			
SREV	CALCIUM	RSD	0.2016	1		mg/L	++	0.1	0.5			
SREV	CHROMIUM	FOUND	1.96	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	FOUND	1.947	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	REC	97	1		%	++	0.01	0.05			
SREV	CHROMIUM	REC	98	1		%	++	0.01	0.05			
SREV	CHROMIUM	RSD	0.8178	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	RSD	0.8153	1		mg/L	++	0.01	0.05			
SREV	COBALT	FOUND	1.954	1		mg/L	++	0.01	0.05			
SREV	COBALT	REC	98	1		%	++	0.01	0.05			
SREV	COBALT	RSD	1.023	1		mg/L	++	0.01	0.05			
SREV	COPPER	FOUND	1.993	1		mg/L	++	0.01	0.05			
SREV	COPPER	REC	100	1		%	++	0.01	0.05			
SREV	COPPER	RSD	0.0688	1		mg/L	++	0.01	0.05			
SREV	GALLIUM	FOUND	2	1		mg/L	++	0.1	0.5			
SREV	GALLIUM	REC	100	1		%	++	0.1	0.5			
SREV	GALLIUM	RSD	1.233	1		mg/L	++	0.1	0.5			

SREV	IRON	FOUND	1.973	1	mg/L	++	0.02	0.05
SREV	IRON	FOUND	1.969	1	mg/L	++	0.02	0.05
SREV	IRON	REC	98	1	%	++	0.02	0.05
SREV	IRON	REC	99	1	%	++	0.02	0.05
SREV	IRON	RSD	0.1626	1	mg/L	++	0.02	0.05
SREV	IRON	RSD	0.4063	1	mg/L	++	0.02	0.05
SREV	LEAD	FOUND	3.847	1	mg/L	++	0.03	0.2
SREV	LEAD	REC	96	1	%	++	0.03	0.2
SREV	LEAD	RSD	0.8548	1	mg/L	++	0.03	0.15
SREV	LITHIUM	FOUND	2.003	1	mg/L	++	0.008	0.04
SREV	LITHIUM	REC	100	1	%	++	0.008	0.04
SREV	LITHIUM	RSD	0.1736	1	mg/L	++	0.008	0.04
SREV	MAGNESIUM	FOUND	99.78	1	mg/L	++	0.2	1
SREV	MAGNESIUM	REC	100	1	%	++	0.2	1
SREV	MAGNESIUM	RSD	0.3333	1	mg/L	++	0.2	1
SREV	MANGANESE	FOUND	1.947	1	mg/L	++	0.005	0.03
SREV	MANGANESE	REC	97	1	%	++	0.005	0.03
SREV	MANGANESE	RSD	0.1385	1	mg/L	++	0.005	0.025
SREV	MOLYBDENUM	FOUND	2.038	1	mg/L	++	0.02	0.1
SREV	MOLYBDENUM	REC	102	1	%	++	0.02	0.1
SREV	MOLYBDENUM	RSD	0.7277	1	mg/L	++	0.02	0.1
SREV	NICKEL	FOUND	1.993	1	mg/L	++	0.008	0.04
SREV	NICKEL	REC	100	1	%	++	0.008	0.04
SREV	NICKEL	RSD	1.139	1	mg/L	++	0.008	0.04
SREV	PHOSPHORUS	FOUND	5.11	1	mg/L	++	0.1	0.5
SREV	PHOSPHORUS	REC	102	1	%	++	0.1	0.5
SREV	PHOSPHORUS	RSD	1.645	1	mg/L	++	0.1	0.5
SREV	POTASSIUM	FOUND	20.13	1	mg/L	++	0.2	1
SREV	POTASSIUM	REC	101	1	%	++	0.2	1
SREV	POTASSIUM	RSD	0.1144	1	mg/L	++	0.2	1
SREV	SCANDIUM	FOUND	1.98	1	mg/L	++	0.1	0.5
SREV	SCANDIUM	REC	99	1	%	++	0.1	0.5
SREV	SCANDIUM	RSD	0.012	1	mg/L	++	0.1	0.5
SREV	SELENIUM	FOUND	3.964	1	mg/L	++	0.05	0.3
SREV	SELENIUM	REC	99	1	%	++	0.05	0.3
SREV	SELENIUM	RSD	0.0701	1	mg/L	++	0.05	0.25
SREV	SILICA	FOUND	40.86	1	mg/L	++	0.2	1
SREV	SILICA	REC	95	1	%	++	0.2	1
SREV	SILICA	RSD	0.2242	1	mg/L	++	0.214	1.07
SREV	SILVER	FOUND	1	1	mg/L	++	0.01	0.03
SREV	SILVER	REC	100	1	%	++	0.01	0.03
SREV	SILVER	RSD	0.2109	1	mg/L	++	0.01	0.025
SREV	SODIUM	FOUND	100.5	1	mg/L	++	0.2	1
SREV	SODIUM	REC	101	1	%	++	0.2	1
SREV	SODIUM	RSD	0.1192	1	mg/L	++	0.2	1
SREV	STRONTIUM	FOUND	1.985	1	mg/L	++	0.005	0.03
SREV	STRONTIUM	REC	99	1	%	++	0.005	0.03
SREV	STRONTIUM	RSD	0.055	1	mg/L	++	0.005	0.025
SREV	SULFUR	FOUND	50.08	1	mg/L	++	0.3	1
SREV	SULFUR	REC	100	1	%	++	0.3	1
SREV	SULFUR	RSD	1.232	1	mg/L	++	0.25	1.25
SREV	THALLIUM	FOUND	3.91	1	mg/L	++	0.1	0.5
SREV	THALLIUM	REC	98	1	%	++	0.1	0.5
SREV	THALLIUM	RSD	0.4258	1	mg/L	++	0.1	0.5
SREV	TIN	FOUND	2.01	1	mg/L	++	0.04	0.2
SREV	TIN	REC	101	1	%	++	0.04	0.2
SREV	TIN	RSD	1.129	1	mg/L	++	0.04	0.2

SREV	TITANIUM	FOUND	1.967	1		mg/L	++	0.005	0.03
SREV	TITANIUM	REC	98	1		%	++	0.005	0.03
SREV	TITANIUM	RSD	0.0359	1		mg/L	++	0.005	0.025
SREV	VANADIUM	FOUND	2.021	1		mg/L	++	0.005	0.03
SREV	VANADIUM	REC	101	1		%	++	0.005	0.03
SREV	VANADIUM	RSD	0.1162	1		mg/L	++	0.005	0.025
SREV	YTTRIUM	REC	98.94	1		%	++	0.001	0.005
SREV	ZINC	FOUND	1.93	1		mg/L	++	0.01	0.05
SREV	ZINC	FOUND	1.987	1		mg/L	++	0.01	0.05
SREV	ZINC	REC	97	1		%	++	0.01	0.05
SREV	ZINC	REC	99	1		%	++	0.01	0.05
SREV	ZINC	RSD	0.9309	1		mg/L	++	0.01	0.05
SREV	ZINC	RSD	0.65	1		mg/L	++	0.01	0.05

WG416259ICB

Tag:

Measured: 1/16/2017 2:35:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ALUMINUM	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	BARIUM	FOUND		1	U	mg/L	++	0.003	0.02			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	BISMUTH	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	CHROMIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CHROMIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	COBALT	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	COPPER	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	GALLIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	IRON	FOUND		1	U	mg/L	++	0.02	0.05			
SREV	IRON	FOUND		1	U	mg/L	++	0.02	0.05			
SREV	LEAD	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	LITHIUM	FOUND		1	U	mg/L	++	0.008	0.04			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	MANGANESE	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.02	0.1			
SREV	NICKEL	FOUND		1	U	mg/L	++	0.008	0.04			
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SCANDIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.05	0.3			
SREV	SILICA	FOUND		1	U	mg/L	++	0.2	1			
SREV	SILVER	FOUND		1	U	mg/L	++	0.01	0.03			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	STRONTIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	SULFUR	FOUND		1	U	mg/L	++	0.3	1			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	TIN	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	TITANIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	VANADIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	YTTRIUM	REC	100.21	1		%	++	0.001	0.005			
SREV	ZINC	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	ZINC	FOUND		1	U	mg/L	++	0.01	0.05			

WG416259PQV

Tag: Measured: 1/16/2017 2:38:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	0.49	1	B	mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	98	1	B	%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.94	1		%	++	0.001	0.005			

WG416259ICSAB

Tag: Measured: 1/16/2017 2:41:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	4.86	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	97	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.76	1		%	++	0.001	0.005			

WG415785PBS

Tag: 1 Measured: 1/16/2017 2:48:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		100	U	mg/Kg	++	10	50			
SREV	YTTRIUM	REC	98.62	100		%	++	0.001	0.005			

WG415785LCSS2

Tag: 1 Measured: 1/16/2017 2:51:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	693	100		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	82	100		%	++	10	50			
SREV	YTTRIUM	REC	107.4	100		%	++	0.001	0.005			

WG415785LCSSD

Tag: 1 Measured: 1/16/2017 2:54:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	696	100		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	83	100		%	++	10	50			
SREV	PHOSPHORUS	RPD	0	100		%	++	10	50			
SREV	YTTRIUM	REC	108.61	100		%	++	0.001	0.005			

L34445-01

Tag: 2 Measured: 1/16/2017 2:57:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	PHOSPHORUS	REG	7880	101		mg/Kg	++	10	50			
NEED	YTTRIUM	REC	120	101		%	ALRT	0.001	0.005			

L34445-02

Tag: 2 Measured: 1/16/2017 3:00:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	1200	101		mg/Kg	++	10	50		M3	
NEED	YTTRIUM	REC	107	101		%	++	0.001	0.005			

L34445-02SDL

Tag: Measured: 1/16/2017 3:03:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	D	6	101		%	++	10	50			
SREV	PHOSPHORUS	FOUND	254	101		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REG	1270	101		mg/Kg	++	10	50			
SREV	YTTRIUM	REC	103.16	101		%	++	0.001	0.005			

L34445-03

Tag: 2 Measured: 1/16/2017 3:06:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	4540	101		mg/Kg	++	10	50		M3	
NEED	YTTRIUM	REC	116	101		%	++	0.001	0.005			

L34445-04

Tag: 2 Measured: 1/16/2017 3:10:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	10900	510		mg/Kg	++	50	300		M3	
NEED	YTTRIUM	REC	107	510		%	++	0.001	0.005			

L34445-04MS

Tag: 1 Measured: 1/16/2017 3:13:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	11337	510		mg/Kg	++	50	300			
SREV	PHOSPHORUS	REC	86	510		%	++	50	300			
SREV	YTTRIUM	REC	107.62	510		%	++	0.001	0.005			

L34445-04MSD

Tag: 1 Measured: 1/16/2017 3:16:13 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	11036	510		mg/Kg	++	50	300			
SREV	PHOSPHORUS	REC	27	510		%	ALRT	50	300		M3	
SREV	PHOSPHORUS	RPD	3	510		%	++	50	300			
SREV	YTTRIUM	REC	106.08	510		%	++	0.001	0.005			

WG416259CCV

Tag: Measured: 1/16/2017 3:19:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	2.62	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	105	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.87	1		%	++	0.001	0.005			

WG416259CCB

Tag: Measured: 1/16/2017 3:22:27 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	YTTRIUM	REC	100.76	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/16/2017 14:20:02 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0001**	**-.0002**	**.0000**	**.0001**	**.0013**	**-.0046**	**.0001**	**-.0060**	**-.0001**
Stddev	.0000	.0000	.0000	.0000	.0001	.0002	.0000	.0001	.0000
%RSD	17.35	19.11	143.6	33.81	7.350	3.577	17.22	1.135	6.877
#1	-.0001	-.0002	-.0000	.0001	.0014	-.0047	.0001	-.0061	-.0001
#2	-.0001	-.0002	.0000	.0001	.0012	-.0045	.0002	-.0060	-.0001

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0001**	**.0000**	**.0000**	**.0001**	**.0005**	**-.0000**	**.0001**	**.0002**	**.0049**
Stddev	.0001	.0000	.0000	.0000	.0003	.0000	.0001	.0001	.0005
%RSD	119.9	30.77	20.06	20.43	50.37	199.1	93.66	33.51	10.52
#1	.0000	.0000	.0000	.0001	.0007	.0000	.0000	.0002	.0046
#2	.0001	.0000	.0000	.0001	.0003	-.0001	.0001	.0001	.0053

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0024**	**-.0001**	**.0000**	**.0001**	**.0070**	**.0000**	**-.0000**	**.0000**	**.0001**
Stddev	.0001	.0001	.0000	.0000	.0015	.0000	.0000	.0000	.0000
%RSD	5.772	51.99	96.14	5.995	21.66	72.81	58.47	2.376	4.366
#1	-.0023	-.0001	.0000	.0001	.0081	.0000	-.0000	.0000	.0001
#2	-.0025	-.0001	.0001	.0001	.0060	.0001	-.0000	.0000	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**-.0000**	**.0000**	**.0006**	**.0006**	**.0000**	**.0006**	**.0001**	**-.0001**
Stddev	.0001	.0001	.0000	.0000	.0000	.0000	.0002	.0000	.0000
%RSD	211.0	478.6	131.5	1.128	1.128	50.95	39.24	20.91	17.54
#1	.0001	.0000	.0000	.0006	.0006	.0000	.0004	.0002	-.0001
#2	-.0000	-.0001	.0000	.0006	.0006	.0001	.0007	.0001	-.0000

Sample Name: Blank Acquired: 1/16/2017 14:20:02 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**-.0003**	**-.0000**	**.0001**
Stddev	.0002	.0000	.0000
%RSD	56.32	94.56	25.46
#1	-.0002	-.0001	.0000
#2	-.0004	-.0000	.0001

Int. Std.	Y_3710
Units	Cts/S
Avg	15597.
Stddev	22.
%RSD	.14302
#1	15613.
#2	15581.

Sample Name: WG415785PBS Acquired: 1/16/2017 14:48:15 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 100 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0001**	**.0284**	**-.0226**	**.0059**	**.0022**	**.0038**	**-.0262**	**-.1052**	**-.0002**
Stddev	.0028	.0119	.0108	.0002	.0000	.0002	.0180	.0053	.0002
%RSD	3183.	41.88	47.97	3.825	1.575	5.300	68.75	5.032	97.09
#1	.0019	.0200	-.0149	.0057	.0022	.0036	-.0390	-.1090	-.0004
#2	-.0021	.0368	-.0303	.0060	.0022	.0039	-.0135	-.1015	-.0001

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0015**	**-.0005**	**-.0020**	**.0074**	**-.0039**	**.0112**	**.0146**	**-.0348**	**.0351**
Stddev	.0013	.0019	.0004	.0015	.0009	.0007	.0023	.0204	.0270
%RSD	85.03	355.3	19.93	19.96	24.17	5.817	15.69	58.57	76.99
#1	.0006	-.0019	-.0017	.0064	-.0045	.0107	.0130	-.0492	.0160
#2	.0024	.0008	-.0023	.0084	-.0032	.0116	.0162	-.0204	.0542

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002**	**.0531**	**-.0006**	**.0032**	**-.0036**	**-.0027**	**.0174**	**.0029**	**.0413**
Stddev	.0002	.0312	.0003	.0015	.0016	.0000	.0279	.0073	.0033
%RSD	94.88	58.70	45.54	47.35	44.18	1.368	160.2	252.2	7.985
#1	.0001	.0311	-.0004	.0021	-.0048	-.0027	.0372	.0081	.0390
#2	.0004	.0752	-.0007	.0043	-.0025	-.0028	-.0023	-.0023	.0436

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0124**	**.0011**	**-.0123**	**-.0121**	**-.0259**	**.0254**	**.0019**	**.0012**	**-.0009**
Stddev	.0097	.0000	.0130	.0044	.0093	.0029	.0002	.0004	.0342
%RSD	78.03	.2774	106.0	35.98	35.98	11.42	8.052	31.19	3728.
#1	-.0055	.0011	-.0215	-.0090	-.0193	.0275	.0018	.0010	.0233
#2	-.0192	.0011	-.0031	-.0152	-.0325	.0234	.0020	.0015	-.0251

Sample Name: WG415785PBS Acquired: 1/16/2017 14:48:15 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 100 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0001	.0039	.0051
Stddev	.0011	.0013	.0002
%RSD	770.0	33.34	3.919
#1	.0006	.0048	.0049
#2	-.0009	.0030	.0052

Int. Std.	Y_3710
Units	Cts/S
Avg	15381.
Stddev	48.
%RSD	.31216
#1	15415.
#2	15347.

Sample Name: L34445-04MS Acquired: 1/16/2017 15:13:07 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 510 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0957	54.58	.2051	.1517	.4245	.1007	.1459	65.79	.1162
Stddev	.0023	.25	.0092	.0011	.0014	.0006	.0261	.44	.0008
%RSD	2.388	.4509	4.474	.7316	.3201	.5505	17.86	.6701	.6728
#1	.0973	54.40	.1986	.1525	.4236	.1003	.1275	65.48	.1168
#2	.0941	54.75	.2116	.1509	.4255	.1010	.1644	66.10	.1157

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1173	.1124	.4142	.4114	.1578	48.07	47.56	.1793	31.52
Stddev	.0004	.0020	.0002	.0034	.0045	.30	.32	.0096	.10
%RSD	.3270	1.816	.0381	.8321	2.874	.6282	.6632	5.376	.3170
#1	.1175	.1110	.4141	.4138	.1546	47.85	47.33	.1725	31.45
#2	.1170	.1139	.4143	.4090	.1610	48.28	47.78	.1861	31.59

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2381	21.79	2.883	.1026	19.19	.2406	22.23	.2118	1.782
Stddev	.0010	.18	.012	.0001	.07	.0023	.01	.0041	.012
%RSD	.4054	.8047	.4151	.1328	.3794	.9679	.0405	1.946	.6578
#1	.2375	21.67	2.874	.1025	19.13	.2390	22.23	.2147	1.790
#2	.2388	21.92	2.891	.1027	19.24	.2423	22.22	.2089	1.773

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2057	.2004	.1848	4.576	9.793	.2048	.3004	1.070	.3780
Stddev	.0095	.0016	.0437	.033	.071	.0038	.0007	.006	.0122
%RSD	4.632	.8020	23.66	.7248	.7248	1.872	.2320	.5687	3.215
#1	.1990	.1993	.1539	4.553	9.743	.2021	.2999	1.066	.3866
#2	.2124	.2015	.2157	4.600	9.843	.2075	.3008	1.075	.3694

Sample Name: L34445-04MS Acquired: 1/16/2017 15:13:07 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 510 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3558	.8230	.8293
Stddev	.0009	.0027	.0049
%RSD	.2436	.3257	.5946
#1	.3564	.8211	.8258
#2	.3552	.8249	.8327

Int. Std.	Y_3710
Units	Cts/S
Avg	16786.
Stddev	217.
%RSD	1.2945
#1	16940.
#2	16633.

Sample Name: CalStd-1 Acquired: 1/16/2017 14:23:12 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0187**	**.1075**	**.0034**	**.0224**	**2.776**	**1.316**	**.0048**	**.0346**	**.0469**
Stddev	.0000	.0003	.0000	.0002	.005	.001	.0000	.0002	.0003
%RSD	.1301	.3145	.7826	.7725	.1924	.0402	.9091	.4819	.5470
#1	.0187	.1072	.0034	.0223	2.780	1.317	.0048	.0345	.0467
#2	.0187	.1077	.0035	.0225	2.773	1.316	.0049	.0348	.0471

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0415**	**.0146**	**.0509**	**.0696**	**.0406**	**.0324**	**.0848**	**.0030**	**.1048**
Stddev	.0003	.0001	.0002	.0001	.0002	.0001	.0000	.0000	.0003
%RSD	.8246	.5809	.4489	.1210	.3910	.4390	.0524	1.296	.3160
#1	.0413	.0145	.0507	.0696	.0405	.0325	.0848	.0030	.1046
#2	.0418	.0146	.0510	.0695	.0407	.0323	.0849	.0030	.1051

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.6043**	**.0169**	**.2018**	**.0110**	**.0994**	**.0027**	**.0072**	**.0028**	**.0020**
Stddev	.0004	.0000	.0002	.0001	.0005	.0000	.0000	.0001	.0001
%RSD	.0700	.1843	.1130	.8173	.4641	.9584	.2795	1.916	3.212
#1	.6046	.0170	.2016	.0109	.0997	.0027	.0072	.0029	.0020
#2	.6040	.0169	.2020	.0111	.0991	.0027	.0072	.0028	.0021

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.6452**	**.0034**	**.0299**	**.0299**	**.0056**	**1.998**	**.0716**	**.0077**	**.0166**
Stddev	.0014	.0000	.0000	.0000	.0000	.004	.0003	.0001	.0001
%RSD	.2179	1.014	.1647	.1647	.0192	.1901	.4252	.8731	.3329
#1	.6462	.0033	.0299	.0299	.0056	2.001	.0719	.0077	.0166
#2	.6442	.0034	.0299	.0299	.0056	1.995	.0714	.0078	.0165

Sample Name: CalStd-1 Acquired: 1/16/2017 14:23:12 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0164	.0249
Stddev	.0001	.0002
%RSD	.6640	.7239
#1	.0163	.0248
#2	.0165	.0251

Int. Std.	Y_3710
Units	Cts/S
Avg	15797.
Stddev	115.
%RSD	.73045
#1	15878.
#2	15715.

Sample Name: CalStd-2 Acquired: 1/16/2017 14:26:16 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0376**	**.2161**	**.0069**	**.0446**	**5.588**	**2.668**	**.0095**	**.0744**	**.0940**
Stddev	.0002	.0008	.0000	.0000	.022	.009	.0001	.0001	.0001
%RSD	.4218	.3782	.3933	.0384	.3975	.3307	.5595	.1008	.1322
#1	.0375	.2166	.0069	.0446	5.604	2.675	.0095	.0745	.0940
#2	.0377	.2155	.0068	.0446	5.572	2.662	.0096	.0744	.0941

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0833**	**.0291**	**.1017**	**.1397**	**.0810**	**.0646**	**.1706**	**.0056**	**.2037**
Stddev	.0004	.0000	.0003	.0010	.0001	.0000	.0007	.0000	.0010
%RSD	.4678	.0656	.3222	.7091	.0966	.0322	.4062	.3303	.5116
#1	.0830	.0291	.1014	.1404	.0809	.0646	.1711	.0056	.2044
#2	.0836	.0292	.1019	.1390	.0810	.0647	.1701	.0057	.2029

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.209**	**.0338**	**.4025**	**.0221**	**.1908**	**.0054**	**.0144**	**.0056**	**.0040**
Stddev	.009	.0002	.0015	.0001	.0004	.0001	.0001	.0000	.0001
%RSD	.7217	.6944	.3791	.2753	.2355	1.185	.8569	.5768	1.470
#1	1.215	.0340	.4036	.0221	.1911	.0055	.0144	.0056	.0039
#2	1.203	.0337	.4014	.0222	.1905	.0054	.0145	.0056	.0040

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.294**	**.0067**	**.0594**	**.0594**	**.0112**	**4.020**	**.1442**	**.0155**	**.0335**
Stddev	.005	.0000	.0004	.0004	.0000	.016	.0008	.0000	.0001
%RSD	.3859	.4801	.6944	.6944	.3263	.3985	.5627	.0050	.2978
#1	1.298	.0067	.0597	.0597	.0112	4.031	.1448	.0155	.0334
#2	1.291	.0067	.0592	.0592	.0112	4.009	.1437	.0155	.0335

Sample Name: CalStd-2 Acquired: 1/16/2017 14:26:16 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0330	.0502
Stddev	.0001	.0001
%RSD	.1980	.1893
#1	.0329	.0501
#2	.0330	.0502

Int. Std.	Y_3710
Units	Cts/S
Avg	15830.
Stddev	61.
%RSD	.38485
#1	15873.
#2	15787.

Sample Name: CalStd-3 Acquired: 1/16/2017 14:29:19 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.544	1.997	.3417	9.217	.0201	.0553
Stddev	.004	.007	.0005	.032	.0000	.0002
%RSD	.2439	.3550	.1548	.3413	.1220	.4254
#1	1.546	2.002	.3421	9.239	.0201	.0552
#2	1.541	1.992	.3414	9.195	.0201	.0555

Int. Std.	Y_3710
Units	Cts/S
Avg	15369.
Stddev	102.
%RSD	.66652
#1	15442.
#2	15297.

Sample Name: ICV Acquired: 1/16/2017 14:32:30 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.000	2.057	3.935	2.073	1.975	2.013	1.989	100.5	1.965
Stddev	.002	.015	.036	.024	.001	.001	.008	.2	.022
%RSD	.2109	.7166	.9110	1.173	.0337	.0527	.3814	.2016	1.114
#1	.9990	2.068	3.910	2.056	1.975	2.012	1.983	100.3	1.949
#2	1.002	2.047	3.961	2.090	1.974	2.014	1.994	100.6	1.980
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.968	1.954	1.960	1.947	1.993	1.973	1.969	1.995	20.13
Stddev	.021	.020	.016	.016	.001	.003	.008	.025	.02
%RSD	1.092	1.023	.8178	.8153	.0688	.1626	.4063	1.233	.1144
#1	1.953	1.940	1.948	1.936	1.992	1.970	1.975	2.012	20.15
#2	1.984	1.968	1.971	1.958	1.994	1.975	1.963	1.978	20.11
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.003	99.78	1.947	2.038	100.5	1.993	5.111	3.847	50.08
Stddev	.004	.33	.003	.015	.1	.023	.084	.033	.62
%RSD	.1736	.3333	.1385	.7277	.1192	1.139	1.645	.8548	1.232
#1	2.006	99.54	1.945	2.028	100.6	1.977	5.051	3.824	49.64
#2	2.001	100.0	1.949	2.049	100.4	2.009	5.170	3.870	50.51
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICV Acquired: 1/16/2017 14:32:30 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.144**	**1.981**	**3.964**	**19.09**	F **40.86**	**2.010**	**1.985**	**1.967**	**3.909**
Stddev	.035	.000	.003	.04	.09	.023	.001	.001	.017
%RSD	.8507	.0120	.0701	.2242	.2242	1.129	.0550	.0359	.4258
#1	4.119	1.981	3.962	19.06	40.79	1.994	1.986	1.966	3.897
#2	4.169	1.981	3.966	19.12	40.92	2.026	1.984	1.967	3.921
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					20.00				
Range					5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**2.021**	**1.930**	**1.987**
Stddev	.002	.013	.018
%RSD	.1162	.6500	.9309
#1	2.019	1.921	1.974
#2	2.023	1.939	2.000
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**15431.**
Stddev	136.
%RSD	.87807
#1	15527.
#2	15335.

Sample Name: ICB Acquired: 1/16/2017 14:35:33 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0028**	**.0135**	**.0015**	**.0028**	**.0029**	**.0046**	**-.0158**	**-.0704**	**.0013**
Stddev	.0012	.0044	.0015	.0018	.0000	.0002	.0105	.0149	.0002
%RSD	41.90	32.52	97.70	65.22	.0042	3.454	66.20	21.22	14.72
#1	-.0037	.0104	.0005	.0015	.0029	.0045	-.0084	-.0809	.0011
#2	-.0020	.0165	.0025	.0041	.0029	.0047	-.0232	-.0598	.0014
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0021**	**-.0010**	**-.0022**	**.0041**	**-.0025**	**.0044**	**.0073**	**.0007**	**.0190**
Stddev	.0002	.0009	.0000	.0007	.0009	.0006	.0017	.0104	.0019
%RSD	10.98	83.82	.1406	17.11	36.16	12.95	23.84	1410.	9.815
#1	.0023	-.0004	-.0022	.0046	-.0031	.0049	.0085	-.0066	.0177
#2	.0019	-.0017	-.0022	.0036	-.0018	.0040	.0061	.0081	.0203
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009**	**.0832**	**.0001**	**.0029**	**.0248**	**.0022**	**-.0188**	**-.0046**	**.0393**
Stddev	.0004	.0059	.0001	.0006	.0008	.0053	.0140	.0198	.0138
%RSD	41.28	7.139	142.3	19.87	3.339	238.0	74.21	429.5	35.20
#1	.0011	.0790	-.0000	.0033	.0253	.0060	-.0287	.0094	.0491
#2	.0006	.0874	.0001	.0025	.0242	-.0015	-.0089	-.0186	.0295
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/16/2017 14:35:33 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0074**	**.0017**	**-.0031**	**.0009**	**.0019**	**-.0060**	**.0024**	**.0022**	**.0101**
Stddev	.0082	.0000	.0002	.0056	.0120	.0106	.0001	.0003	.0113
%RSD	110.9	2.232	6.043	643.2	643.2	177.6	4.861	14.08	112.2
#1	-.0016	.0017	-.0030	.0049	.0104	.0015	.0023	.0024	.0021
#2	-.0133	.0016	-.0032	-.0031	-.0066	-.0135	.0025	.0020	.0181
Check ?	Chk Pass	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	**-.0018**	**.0032**	**.0030**
Stddev	.0003	.0010	.0015
%RSD	17.13	31.25	52.38
#1	-.0016	.0025	.0019
#2	-.0020	.0039	.0041
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**15629.**
Stddev	64.
%RSD	.40915
#1	15674.
#2	15584.

Sample Name: PQV Acquired: 1/16/2017 14:38:46 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0270	.1676	.2099	.0559	.0177	.0555	.1899	.4739	.0161
Stddev	.0006	.0011	.0014	.0020	.0000	.0005	.0006	.0027	.0004
%RSD	2.165	.6286	.6648	3.592	.2097	.9296	.3211	.5621	2.293
#1	.0266	.1669	.2089	.0544	.0177	.0559	.1895	.4720	.0158
#2	.0275	.1683	.2109	.0573	.0178	.0552	.1903	.4758	.0163
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0163	.0508	.0506	.0556	.0452	.0565	.0590	.5302	1.055
Stddev	.0013	.0003	.0011	.0028	.0021	.0023	.0003	.0300	.024
%RSD	7.821	.6749	2.125	5.095	4.619	4.104	.5671	5.654	2.245
#1	.0154	.0510	.0498	.0576	.0437	.0548	.0592	.5514	1.038
#2	.0172	.0506	.0514	.0536	.0467	.0581	.0587	.5090	1.072
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0423	1.094	.0248	.1053	1.050	.0408	.4933	.1586	1.293
Stddev	.0004	.004	.0001	.0037	.004	.0042	.0350	.0150	.026
%RSD	.9958	.3730	.2043	3.490	.3425	10.21	7.091	9.458	2.045
#1	.0426	1.097	.0248	.1079	1.048	.0438	.4686	.1692	1.312
#2	.0420	1.091	.0249	.1027	1.053	.0379	.5180	.1480	1.274
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: PQV Acquired: 1/16/2017 14:38:46 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1535	.5117	.2557	.5217	F 1.116	.2100	.0280	.0262	.5269
Stddev	.0199	.0036	.0024	.0007	.002	.0013	.0001	.0006	.0287
%RSD	12.97	.7108	.9249	.1421	.1421	.5961	.3627	2.323	5.446
#1	.1676	.5143	.2540	.5211	1.115	.2091	.0281	.0258	.5066
#2	.1394	.5092	.2574	.5222	1.118	.2109	.0280	.0266	.5472
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0237	.0564	.0572
Stddev	.0008	.0010	.0007
%RSD	3.196	1.717	1.183
#1	.0232	.0571	.0577
#2	.0243	.0557	.0568
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15743.
Stddev	93.
%RSD	.59030
#1	15809.
#2	15677.

Sample Name: ICSAB Acquired: 1/16/2017 14:41:57 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4972	249.9	5.025	.5003	.2480	.2471	.4935	244.3	.4756
Stddev	.0013	.3	.022	.0019	.0003	.0009	.0118	1.0	.0021
%RSD	.2533	.1066	.4418	.3713	.1270	.3821	2.397	.4037	.4383
#1	.4963	249.7	5.009	.5016	.2477	.2464	.5019	243.6	.4741
#2	.4981	250.1	5.041	.4990	.2482	.2477	.4852	245.0	.4771
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4801	.2360	.2452	.2379	.2427	94.13	93.71	.4711	25.31
Stddev	.0008	.0011	.0038	.0013	.0012	.25	.32	.0121	.01
%RSD	.1623	.4749	1.540	.5643	.4942	.2698	.3362	2.574	.0419
#1	.4796	.2352	.2426	.2389	.2435	93.95	93.49	.4626	25.31
#2	.4807	.2368	.2479	.2370	.2418	94.31	93.93	.4797	25.32
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5098	250.0	.2377	.4911	25.09	.4757	4.855	.4376	2.549
Stddev	.0008	1.3	.0007	.0091	.05	.0026	.042	.0017	.003
%RSD	.1516	.5339	.3028	1.844	.1883	.5464	.8623	.3898	.1202
#1	.5092	249.0	.2372	.4847	25.05	.4739	4.826	.4364	2.547
#2	.5103	250.9	.2382	.4975	25.12	.4775	4.885	.4388	2.551
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/16/2017 14:41:57 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5353**	**.5023**	**5.016**	**2.527**	F **5.408**	**2.428**	**.4925**	**.4937**	**2.367**
Stddev	.0139	.0016	.036	.000	.000	.023	.0009	.0002	.025
%RSD	2.596	.3262	.7181	.0065	.0065	.9496	.1922	.0462	1.051
#1	.5255	.5011	4.991	2.527	5.408	2.411	.4919	.4935	2.349
#2	.5451	.5034	5.041	2.527	5.408	2.444	.4932	.4938	2.384
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.2452**	**.4767**	**.5020**
Stddev	.0033	.0053	.0042
%RSD	1.339	1.110	.8282
#1	.2429	.4729	.4991
#2	.2476	.4804	.5050
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**15716.**
Stddev	99.
%RSD	.62732
#1	15786.
#2	15646.

Sample Name: WASH Acquired: 1/16/2017 14:45:02 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.0902**	**-.0114**	**-.0048**	**.0022**	**.0040**	**-.0040**	**-.0270**	**.0010**
Stddev	.0015	.0256	.0065	.0031	.0001	.0001	.0095	.0015	.0006
%RSD	170.9	28.39	57.00	64.63	5.801	1.418	237.1	5.590	52.89
#1	-.0019	.0721	-.0068	-.0026	.0021	.0041	.0027	-.0281	.0007
#2	.0002	.1083	-.0160	-.0070	.0023	.0040	-.0107	-.0260	.0014
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0018**	**-.0003**	**-.0001**	**-.0013**	**-.0033**	**.0435**	**.0403**	**.0079**	**-.0015**
Stddev	.0007	.0018	.0012	.0053	.0014	.0019	.0073	.0316	.0119
%RSD	39.81	549.8	1685.	407.8	43.62	4.348	18.19	398.1	818.0
#1	.0013	.0010	.0008	-.0051	-.0043	.0422	.0351	.0303	-.0099
#2	.0023	-.0016	-.0009	.0025	-.0023	.0448	.0454	-.0144	.0070
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002**	**.1249**	**.0010**	**.0019**	**-.0041**	**-.0015**	**-.0469**	**.0053**	**-.0221**
Stddev	.0002	.0355	.0005	.0022	.0022	.0001	.0362	.0055	.0204
%RSD	94.26	28.40	44.94	118.0	53.76	7.439	77.26	104.4	92.34
#1	.0001	.0998	.0007	.0034	-.0025	-.0014	-.0213	.0092	-.0077
#2	.0004	.1500	.0014	.0003	-.0056	-.0015	-.0725	.0014	-.0366
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/16/2017 14:45:02 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0034	.0011	-.0258	-.0127	-.0272	.0040	.0020	.0009	.0274
Stddev	.0083	.0002	.0456	.0059	.0125	.0140	.0002	.0011	.0294
%RSD	246.3	17.45	176.5	46.16	46.16	347.3	7.863	126.4	107.4
#1	.0025	.0013	-.0581	-.0085	-.0183	.0139	.0019	.0001	.0066
#2	-.0093	.0010	.0064	-.0168	-.0360	-.0059	.0022	.0016	.0481
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0002	.0024	.0032
Stddev	.0013	.0028	.0007
%RSD	603.1	116.7	22.93
#1	-.0011	.0004	.0037
#2	.0007	.0044	.0027
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15563.
Stddev	37.
%RSD	.23550
#1	15589.
#2	15537.

Sample Name: WG415785LCSS2 Acquired: 1/16/2017 14:51:26 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0440	175.7	.8823	.0744	1.811	.0139	.0173	148.4	.4631
Stddev	.0024	.3	.0426	.0057	.000	.0001	.0096	.7	.0059
%RSD	5.409	.1822	4.826	7.708	.0233	.7036	55.54	.4505	1.280
#1	.0423	175.5	.8522	.0704	1.810	.0138	.0241	147.9	.4589
#2	.0457	176.0	.9124	.0785	1.811	.0140	.0105	148.8	.4673

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4644	.0698	.2213	.2021	1.205	191.6	189.7	.0353	44.87
Stddev	.0045	.0007	.0002	.0021	.001	.8	.8	.0113	.06
%RSD	.9586	1.008	.0719	1.026	.0774	.4427	.4032	32.16	.1355
#1	.4612	.0693	.2212	.2036	1.204	191.0	189.2	.0273	44.82
#2	.4675	.0703	.2214	.2006	1.206	192.2	190.3	.0433	44.91

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1412	62.59	4.692	.0113	1.477	.1620	6.928	11.82	3.221
Stddev	.0001	.32	.016	.0004	.005	.0017	.098	.18	.085
%RSD	.0445	.5082	.3316	3.814	.3454	1.075	1.420	1.490	2.643
#1	.1413	62.36	4.681	.0116	1.481	.1633	6.858	11.70	3.161
#2	.1412	62.81	4.703	.0110	1.473	.1608	6.997	11.95	3.281

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0536	.0350	-.0035	20.75	44.41	.0572	.3554	4.840	.0498
Stddev	.0235	.0002	.0017	.10	.22	.0040	.0001	.016	.0222
%RSD	43.96	.4461	49.25	.5053	.5053	7.023	.0208	.3364	44.58
#1	.0702	.0349	-.0023	20.68	44.26	.0544	.3554	4.829	.0341
#2	.0369	.0351	-.0047	20.83	44.57	.0600	.3553	4.852	.0654

Sample Name: WG415785LCSS2 Acquired: 1/16/2017 14:51:26 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3970	3.342	3.454
Stddev	.0021	.045	.039
%RSD	.5291	1.354	1.124
#1	.3955	3.310	3.427
#2	.3985	3.374	3.482

Int. Std.	Y_3710
Units	Cts/S
Avg	16751.
Stddev	114.
%RSD	.68011
#1	16831.
#2	16670.

Sample Name: WG415785LCSSD2 Acquired: 1/16/2017 14:54:30 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0406**	**177.4**	**.9150**	**.0652**	**1.820**	**.0139**	**-.0148**	**149.5**	**.4650**
Stddev	.0010	.7	.0155	.0075	.012	.0000	.0121	.1	.0001
%RSD	2.474	.3989	1.696	11.47	.6738	.2980	81.47	.0482	.0206
#1	.0399	177.9	.9260	.0599	1.828	.0139	-.0234	149.6	.4649
#2	.0414	176.9	.9040	.0705	1.811	.0139	-.0063	149.5	.4651

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4666**	**.0723**	**.2203**	**.2046**	**1.201**	**193.0**	**191.1**	**.0228**	**45.29**
Stddev	.0016	.0043	.0021	.0000	.005	.5	.4	.0044	.21
%RSD	.3337	5.994	.9636	.0168	.3827	.2749	.2035	19.42	.4695
#1	.4677	.0692	.2188	.2045	1.204	193.4	191.4	.0197	45.44
#2	.4655	.0754	.2218	.2046	1.198	192.6	190.8	.0259	45.14

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1417**	**62.88**	**4.711**	**.0130**	**1.484**	**.1608**	**6.961**	**11.83**	**3.204**
Stddev	.0005	.19	.011	.0004	.014	.0011	.029	.04	.006
%RSD	.3358	.3089	.2247	3.017	.9690	.6954	.4170	.3170	.1778
#1	.1421	63.02	4.718	.0133	1.495	.1600	6.982	11.86	3.208
#2	.1414	62.74	4.703	.0127	1.474	.1616	6.941	11.80	3.200

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0559**	**.0351**	**.0140**	**21.45**	**45.91**	**.0606**	**.3565**	**4.908**	**.0288**
Stddev	.0308	.0003	.0114	.17	.35	.0037	.0023	.012	.0087
%RSD	54.98	.7815	82.01	.7694	.7694	6.087	.6544	.2498	30.27
#1	.0342	.0353	.0220	21.57	46.16	.0632	.3581	4.917	.0227
#2	.0777	.0349	.0059	21.34	45.66	.0580	.3548	4.899	.0350

Sample Name: WG415785LCSSD2 Acquired: 1/16/2017 14:54:30 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3990	3.367	3.469
Stddev	.0025	.001	.001
%RSD	.6141	.0321	.0299
#1	.4007	3.367	3.469
#2	.3973	3.366	3.470

Int. Std.	Y_3710
Units	Cts/S
Avg	16940.
Stddev	16.
%RSD	.09287
#1	16929.
#2	16951.

Sample Name: L34445-01 Acquired: 1/16/2017 14:57:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 101 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017	188.5	.0745	.0730	1.263	.0136	-.0339	189.9	.1100
Stddev	.0021	.3	.0091	.0032	.003	.0001	.0270	.1	.0016
%RSD	128.2	.1610	12.26	4.348	.2218	.6187	79.79	.0382	1.476
#1	.0002	188.8	.0680	.0708	1.265	.0135	-.0530	190.0	.1089
#2	.0032	188.3	.0809	.0753	1.261	.0136	-.0148	189.9	.1112

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1089	.0605	.9785	.9596	.1943	185.1	183.3	.0244	27.76
Stddev	.0008	.0004	.0012	.0044	.0019	.3	.2	.0226	.02
%RSD	.7459	.6721	.1205	.4587	1.002	.1489	.1083	92.74	.0669
#1	.1095	.0608	.9776	.9565	.1957	185.3	183.5	.0404	27.77
#2	.1084	.0602	.9793	.9627	.1929	184.9	183.2	.0084	27.74

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1676	38.66	5.967	.0309	2.440	.5479	77.99	.1084	2.975
Stddev	.0000	.02	.005	.0010	.004	.0034	.20	.0116	.006
%RSD	.0069	.0546	.0828	3.094	.1569	.6138	.2507	10.67	.2104
#1	.1676	38.64	5.970	.0315	2.443	.5456	77.85	.1165	2.970
#2	.1676	38.67	5.963	.0302	2.437	.5503	78.13	.1002	2.979

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0216	.0432	.0010	20.68	44.25	.0369	.7026	4.887	.0399
Stddev	.0126	.0000	.0363	.01	.03	.0050	.0017	.012	.0081
%RSD	58.48	.1106	3638.	.0612	.0612	13.50	.2384	.2517	20.24
#1	-.0127	.0431	.0267	20.69	44.27	.0404	.7038	4.896	.0456
#2	-.0305	.0432	-.0247	20.67	44.23	.0334	.7015	4.878	.0342

Sample Name: L34445-01 Acquired: 1/16/2017 14:57:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 101 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.231	3.648	3.794
Stddev	.001	.008	.015
%RSD	.1068	.2138	.3989
#1	1.232	3.642	3.783
#2	1.230	3.653	3.804

Int. Std.	Y_3710
Units	Cts/S
Avg	18741.
Stddev	6.
%RSD	.02990
#1	18737.
#2	18745.

Sample Name: L34445-02 Acquired: 1/16/2017 15:00:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 101 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0084	197.4	.0492	.1040	1.941	.0143	-.0008	367.4	.0047
Stddev	.0007	.2	.0083	.0025	.005	.0000	.0275	.5	.0008
%RSD	8.561	.0832	16.95	2.449	.2405	.0699	3238.	.1230	17.73
#1	-.0089	197.5	.0551	.1058	1.944	.0143	.0186	367.1	.0052
#2	-.0079	197.3	.0433	.1022	1.937	.0143	-.0203	367.7	.0041

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0029	.1142	.2325	.2090	.1909	236.2	234.3	.0139	35.61
Stddev	.0003	.0070	.0041	.0021	.0046	.1	.1	.0095	.05
%RSD	10.12	6.092	1.784	1.011	2.393	.0252	.0542	68.47	.1369
#1	.0027	.1093	.2354	.2105	.1941	236.3	234.4	.0072	35.64
#2	.0031	.1191	.2295	.2075	.1876	236.2	234.2	.0206	35.57

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2861	97.87	23.67	.0023	1.230	.2358	11.92	.1605	1.948
Stddev	.0006	.22	.00	.0011	.004	.0000	.01	.0000	.004
%RSD	.2105	.2258	.0171	46.09	.3407	.0167	.0902	.0123	.2100
#1	.2865	97.71	23.67	.0016	1.233	.2358	11.93	.1605	1.951
#2	.2857	98.02	23.67	.0031	1.227	.2358	11.91	.1606	1.945

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0116	.0495	.0067	21.23	45.42	.0514	.3894	2.798	.0086
Stddev	.0150	.0001	.0129	.01	.02	.0149	.0002	.006	.0351
%RSD	129.5	.2563	192.6	.0457	.0457	29.05	.0597	.2175	406.1
#1	.0010	.0496	.0158	21.22	45.41	.0408	.3896	2.802	.0335
#2	.0223	.0494	-.0024	21.23	45.44	.0619	.3892	2.794	-.0162

Sample Name: L34445-02 Acquired: 1/16/2017 15:00:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 101 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3014	.6676	.6992
Stddev	.0038	.0021	.0026
%RSD	1.248	.3175	.3738
#1	.2987	.6691	.6974
#2	.3040	.6661	.7011

Int. Std.	Y_3710
Units	Cts/S
Avg	16641.
Stddev	93.
%RSD	.55657
#1	16707.
#2	16576.

Sample Name: L34445-02SDL Acquired: 1/16/2017 15:03:47 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 101 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0019	41.84	.0022	.0270	.4202	.0062	.0005	80.29	.0013
Stddev	.0021	.10	.0079	.0002	.0013	.0000	.0362	.38	.0002
%RSD	108.2	.2294	355.0	.7953	.3148	.2722	7189.	.4786	12.31
#1	-.0005	41.91	.0078	.0268	.4212	.0062	-.0251	80.56	.0014
#2	-.0034	41.77	-.0033	.0271	.4193	.0062	.0261	80.02	.0011

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010	.0271	.0483	.0509	.0384	52.95	52.52	-.0206	7.642
Stddev	.0009	.0039	.0023	.0019	.0005	.17	.18	.0444	.018
%RSD	93.67	14.54	4.786	3.735	1.345	.3116	.3363	215.2	.2380
#1	.0003	.0299	.0467	.0495	.0380	53.06	52.64	-.0520	7.655
#2	.0017	.0243	.0500	.0522	.0388	52.83	52.39	.0108	7.630

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0616	21.21	5.237	.0034	.2547	.0522	2.511	.0474	.4042
Stddev	.0004	.04	.017	.0001	.0022	.0004	.051	.0159	.0099
%RSD	.7151	.1879	.3191	2.679	.8744	.7872	2.014	33.47	2.462
#1	.0613	21.24	5.249	.0034	.2563	.0525	2.475	.0362	.3971
#2	.0619	21.19	5.225	.0033	.2531	.0519	2.547	.0587	.4112

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0136	.0116	-.0221	4.790	10.25	.0092	.0862	.6171	.0261
Stddev	.0086	.0003	.0236	.017	.04	.0001	.0004	.0003	.0081
%RSD	63.23	2.540	106.6	.3630	.3630	.8803	.4301	.0506	31.00
#1	.0196	.0118	-.0388	4.802	10.28	.0091	.0865	.6173	.0318
#2	.0075	.0113	-.0055	4.777	10.22	.0092	.0860	.6169	.0204

Sample Name: L34445-02SDL Acquired: 1/16/2017 15:03:47 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 101 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0638	.1543	.1536
Stddev	.0015	.0044	.0028
%RSD	2.420	2.875	1.811
#1	.0649	.1511	.1516
#2	.0627	.1574	.1556

Int. Std.	Y_3710
Units	Cts/S
Avg	16090.
Stddev	198.
%RSD	1.2282
#1	16229.
#2	15950.

Sample Name: L34445-03 Acquired: 1/16/2017 15:06:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 101 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0056	158.5	.0518	.0825	1.073	.0128	.0037	118.8	.0304
Stddev	.0020	.5	.0137	.0007	.003	.0001	.0078	.6	.0008
%RSD	34.85	.3369	26.47	.8876	.2644	1.097	210.5	.4824	2.718
#1	-.0070	158.1	.0421	.0831	1.071	.0127	-.0018	118.4	.0298
#2	-.0042	158.9	.0615	.0820	1.075	.0129	.0092	119.2	.0310

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0289	.0811	.5676	.5423	.2396	198.6	196.2	-.0131	26.06
Stddev	.0001	.0010	.0036	.0015	.0078	.9	.9	.0193	.13
%RSD	.4346	1.207	.6360	.2783	3.270	.4575	.4453	147.3	.4812
#1	.0289	.0818	.5650	.5412	.2341	198.0	195.6	.0005	25.97
#2	.0288	.0804	.5701	.5434	.2452	199.3	196.9	-.0268	26.15

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1742	54.26	9.436	.0189	2.056	.4673	44.96	.1118	1.934
Stddev	.0003	.30	.044	.0019	.011	.0002	.21	.0019	.038
%RSD	.1966	.5580	.4685	10.29	.5270	.0404	.4649	1.670	1.980
#1	.1744	54.05	9.405	.0203	2.048	.4672	44.82	.1104	1.907
#2	.1739	54.48	9.468	.0175	2.063	.4674	45.11	.1131	1.961

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0075	.0446	.0298	17.11	36.61	.0460	.4820	3.349	.0413
Stddev	.0079	.0001	.0086	.04	.08	.0032	.0008	.006	.0075
%RSD	106.4	.3213	28.94	.2199	.2199	6.847	.1600	.1746	18.16
#1	-.0018	.0445	.0237	17.08	36.55	.0482	.4814	3.345	.0466
#2	-.0131	.0447	.0359	17.13	36.67	.0438	.4825	3.353	.0360

Sample Name: L34445-03 Acquired: 1/16/2017 15:06:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 101 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4996	1.919	1.985
Stddev	.0031	.006	.012
%RSD	.6262	.3267	.5890
#1	.4974	1.915	1.977
#2	.5018	1.924	1.994

Int. Std.	Y_3710
Units	Cts/S
Avg	18082.
Stddev	74.
%RSD	.40670
#1	18134.
#2	18030.

Sample Name: L34445-04 Acquired: 1/16/2017 15:10:00 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 510 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0036	44.69	.0082	.0297	.3207	.0064	-.0318	51.78	.0219
Stddev	.0012	.42	.0046	.0030	.0030	.0001	.0007	.45	.0005
%RSD	34.67	.9405	55.74	10.15	.9276	.8651	2.085	.8676	2.279
#1	-.0027	44.99	.0115	.0276	.3228	.0064	-.0322	52.10	.0215
#2	-.0044	44.39	.0050	.0319	.3186	.0064	-.0313	51.46	.0222

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0217	.0174	.2350	.2312	.0698	47.51	46.90	-.0454	9.293
Stddev	.0001	.0000	.0016	.0029	.0010	.35	.38	.0008	.076
%RSD	.6460	.0722	.6899	1.275	1.489	.7448	.8089	1.703	.8166
#1	.0216	.0174	.2338	.2333	.0705	47.76	47.17	-.0448	9.346
#2	.0218	.0173	.2361	.2291	.0691	47.26	46.63	-.0459	9.239

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0471	11.87	2.765	.0102	.6109	.1475	21.39	.0304	.9087
Stddev	.0004	.13	.024	.0038	.0015	.0009	.15	.0023	.0486
%RSD	.9307	1.053	.8759	36.89	.2520	.5971	.6815	7.682	5.343
#1	.0474	11.96	2.782	.0129	.6120	.1468	21.50	.0287	.8743
#2	.0468	11.78	2.748	.0075	.6098	.1481	21.29	.0320	.9430

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0038	.0129	-.0031	4.498	9.626	.0085	.2201	.7684	.0141
Stddev	.0003	.0002	.0248	.042	.090	.0064	.0016	.0065	.0225
%RSD	8.852	1.849	789.4	.9322	.9322	76.07	.7419	.8451	159.3
#1	.0035	.0131	-.0207	4.528	9.689	.0039	.2212	.7730	.0301
#2	.0040	.0127	.0144	4.468	9.562	.0130	.2189	.7638	-.0018

Sample Name: L34445-04 Acquired: 1/16/2017 15:10:00 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 510 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.1980	.7326	.7386
Stddev	.0033	.0036	.0038
%RSD	1.641	.4924	.5145
#1	.2003	.7352	.7413
#2	.1957	.7301	.7359

Int. Std.	Y_3710
Units	Cts/S
Avg	16687.
Stddev	30.
%RSD	.17691
#1	16707.
#2	16666.

Sample Name: L34445-04MSD Acquired: 1/16/2017 15:16:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 510 Custom ID3:
Comment: WG416259

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1003	56.14	.2097	.1513	.4232	.1039	.1850	65.48	.1171
Stddev	.0019	.43	.0240	.0011	.0024	.0008	.0238	.32	.0003
%RSD	1.900	.7698	11.43	.7102	.5588	.7888	12.84	.4904	.2226
#1	.1017	56.44	.2267	.1521	.4249	.1045	.1682	65.70	.1173
#2	.0990	55.83	.1928	.1506	.4215	.1033	.2018	65.25	.1169

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1178	.1100	.4168	.4164	.1633	48.68	48.23	.2105	32.39
Stddev	.0002	.0014	.0049	.0023	.0001	.25	.25	.0010	.15
%RSD	.1640	1.227	1.180	.5467	.0730	.5055	.5269	.4533	.4697
#1	.1177	.1110	.4133	.4148	.1632	48.86	48.40	.2098	32.49
#2	.1180	.1091	.4203	.4180	.1634	48.51	48.05	.2111	32.28

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2434	22.53	2.702	.1093	19.79	.2410	21.64	.2225	1.804
Stddev	.0005	.19	.009	.0006	.17	.0006	.13	.0043	.045
%RSD	.2217	.8406	.3458	.5531	.8559	.2594	.6144	1.916	2.515
#1	.2438	22.67	2.709	.1097	19.91	.2415	21.55	.2195	1.772
#2	.2430	22.40	2.696	.1088	19.67	.2406	21.73	.2255	1.837

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1842	.2065	.2076	4.820	10.32	.2104	.3084	1.109	.3962
Stddev	.0064	.0013	.0071	.044	.10	.0083	.0031	.008	.0207
%RSD	3.464	.6295	3.430	.9220	.9220	3.922	1.002	.7554	5.227
#1	.1797	.2074	.2026	4.852	10.38	.2045	.3106	1.114	.4108
#2	.1887	.2056	.2127	4.789	10.25	.2162	.3062	1.103	.3815

Sample Name: L34445-04MSD Acquired: 1/16/2017 15:16:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 510 Custom ID3:
Comment: WG416259

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3507	.8349	.8352
Stddev	.0026	.0028	.0028
%RSD	.7320	.3345	.3318
#1	.3525	.8329	.8332
#2	.3489	.8368	.8372

Int. Std.	Y_3710
Units	Cts/S
Avg	16546.
Stddev	232.
%RSD	1.4010
#1	16710.
#2	16382.

Sample Name: CCV Acquired: 1/16/2017 15:19:21 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5002	1.023	1.958	1.004	.9626	.9851	.9360	49.51	.9698
Stddev	.0009	.009	.010	.005	.0029	.0044	.0099	.18	.0044
%RSD	.1740	.8511	.5219	.5147	.3007	.4487	1.054	.3622	.4517
#1	.5009	1.029	1.951	1.001	.9646	.9883	.9430	49.64	.9667
#2	.4996	1.017	1.965	1.008	.9605	.9820	.9290	49.39	.9729
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9741	.9569	.9645	.9598	.9744	1.002	.9910	.9471	9.724
Stddev	.0017	.0120	.0018	.0001	.0055	.018	.0097	.0297	.051
%RSD	.1751	1.256	.1882	.0081	.5621	1.760	.9754	3.132	.5261
#1	.9729	.9484	.9633	.9598	.9783	.9896	.9842	.9681	9.760
#2	.9753	.9654	.9658	.9597	.9705	1.015	.9978	.9261	9.688
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9734	48.62	.9648	1.000	48.75	1.003	2.618	1.896	24.89
Stddev	.0037	.38	.0041	.000	.23	.005	.056	.013	.13
%RSD	.3799	.7916	.4245	.0224	.4692	.5106	2.127	.6724	.5032
#1	.9760	48.89	.9677	1.000	48.91	.9997	2.579	1.887	24.98
#2	.9708	48.35	.9619	1.000	48.59	1.007	2.658	1.905	24.80
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/16/2017 15:19:21 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.062**	**.9718**	**1.923**	**9.613**	F **20.57**	**1.010**	**.9639**	**.9833**	**1.956**
Stddev	.027	.0019	.003	.040	.09	.018	.0047	.0073	.033
%RSD	1.315	.1947	.1369	.4134	.4134	1.803	.4869	.7423	1.704
#1	2.043	.9732	1.924	9.641	20.63	.9967	.9672	.9884	1.979
#2	2.081	.9705	1.921	9.585	20.51	1.022	.9606	.9781	1.932
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.9920**	**.9601**	**.9774**
Stddev	.0040	.0096	.0012
%RSD	.4016	1.000	.1252
#1	.9948	.9533	.9783
#2	.9892	.9669	.9766
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**15732.**
Stddev	73.
%RSD	.46477
#1	15784.
#2	15680.

Sample Name: CCB Acquired: 1/16/2017 15:22:27 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	.0195	-.0096	.0002	.0026	.0041	-.0250	-.0929	.0001
Stddev	.0010	.0034	.0111	.0011	.0000	.0000	.0316	.0048	.0002
%RSD	175.1	17.40	115.9	628.8	.9035	1.213	126.3	5.203	428.9
#1	-.0001	.0171	-.0017	.0010	.0026	.0041	-.0027	-.0895	-.0001
#2	.0013	.0219	-.0175	-.0006	.0026	.0041	-.0474	-.0963	.0002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021	-.0002	-.0011	.0063	-.0047	.0169	.0158	.0117	-.0076
Stddev	.0009	.0003	.0012	.0023	.0039	.0013	.0026	.0059	.0064
%RSD	41.02	191.5	111.2	36.63	84.11	7.544	16.25	50.08	83.52
#1	.0027	.0001	-.0002	.0047	-.0019	.0160	.0176	.0076	-.0122
#2	.0015	-.0004	-.0020	.0079	-.0074	.0178	.0140	.0159	-.0031
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007	.0754	.0001	.0011	.0050	.0012	.0083	-.0011	.0384
Stddev	.0003	.0272	.0001	.0001	.0062	.0031	.0357	.0079	.0102
%RSD	44.88	36.10	59.64	5.139	123.7	254.8	428.9	713.7	26.60
#1	.0009	.0562	.0001	.0012	.0006	.0035	-.0169	.0045	.0456
#2	.0005	.0947	.0002	.0011	.0094	-.0010	.0335	-.0067	.0312
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/16/2017 15:22:27 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0048**	**.0015**	**.0027**	**-.0104**	**-.0223**	**-.0052**	**.0021**	**.0013**	**.0090**
Stddev	.0007	.0000	.0138	.0041	.0088	.0019	.0000	.0006	.0005
%RSD	14.07	1.642	513.2	39.54	39.54	36.95	1.435	49.42	5.169
#1	-.0043	.0015	.0125	-.0075	-.0160	-.0065	.0020	.0008	.0093
#2	-.0053	.0015	-.0071	-.0133	-.0285	-.0038	.0021	.0018	.0087
Check ?	Chk Pass	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	**-.0018**	**.0020**	**.0037**
Stddev	.0003	.0003	.0005
%RSD	18.34	16.22	14.39
#1	-.0016	.0018	.0040
#2	-.0020	.0023	.0033
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**15715.**
Stddev	50.
%RSD	.31792
#1	15750.
#2	15679.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52458	PCN	Nitric acid:	52458	PCN
Hydrochloric acid:	52395	PCN	Hydrochloric acid:	52395	PCN

VERIFIED BY: AEB 1/16/17

ICP 3050

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-T-846
Group ID: MA-G-ICP_-3050
Method Ref: M6010B
SOP Ref: SOPII012

WG416282

ACZ Laboratories, Inc

Instrument ID: ICP8
Analyst: AEB
ACZ Dept: 33
Create Date: 01/16/2017 15:48
Start Date/Time: 1/16/17
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	P 30 50	Dilution
1	WG416282ICV	II161203-1			1	☑	1
2	WG416282ICB	NONE			1	☑	1
3	WG416282PQV	II161228-3			1	☑	1
4	WG416282ICSAB	II161206-1			1	☑	1
5	WG415785PBS	NONE			100	☑	100
6	WG415785LCSS2	PCN52708			100	☑	100
7	WG415785LCSSD2	PCN52708			100	☑	100
8	L34445-01	TP-6_7_9 (2-5)			101	☑	505
9	L34445-01SDL	NONE			1	☑	505
10	WG416282CCV	II161221-2			1	☑	1
11	WG416282CCB	NONE			1	☑	1

Y=↑ 1 AEB 1/16/17

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.

Add L34445-04: 510
L34445-04 MS: 510
L34445-04MSD: 510
II 5X SOIL
AEB 1/16/17

Report Comments:

Internal Comments

AREV: AEB 1/17/17
Initials, Date

SREV: 6-18-17
Initials, Date

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	LAEB
Date:	1/17/17
Approved By:	[illegible]
Date:	2/17/17

Work Group:	WG416282
Sample Type:	3050
Analysis Date:	1/16/17
Analyst:	LAEB

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	✓		
2) Are all of the QC critera listed in LIMS within specified limits? **		✓	
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
4) Are all errors properly corrected (i.e: single-line crossout, dated & initialed)?	✓		
5) Is a current standard/reagent form attached to the workgroup?	✓		
6) Have all dilutions performed at the bench been checked off on the benchsheet?	✓		
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			✓
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?	✓		
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			✓
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
L34445-04 MS	P=160% MSD: P=15%	M3

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416282

Date Reported: 18-Jan-17
Run ID: R1493267
Date Analyzed: 16-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416282ICV

Tag:

Measured: 1/16/2017 4:48:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ALUMINUM	FOUND	2.066	1		mg/L	++	0.03	0.2			
SREV	ALUMINUM	REC	103	1		%	++	0.03	0.2			
SREV	ALUMINUM	RSD	0.0848	1		mg/L	++	0.03	0.15			
SREV	ANTIMONY	FOUND	4.182	1		mg/L	++	0.03	0.2			
SREV	ANTIMONY	REC	105	1		%	++	0.03	0.2			
SREV	ANTIMONY	RSD	1.444	1		mg/L	++	0.03	0.15			
SREV	ARSENIC	FOUND	3.999	1		mg/L	++	0.04	0.2			
SREV	ARSENIC	REC	100	1		%	++	0.04	0.2			
SREV	ARSENIC	RSD	0.1476	1		mg/L	++	0.04	0.2			
SREV	BARIUM	FOUND	2.008	1		mg/L	++	0.003	0.02			
SREV	BARIUM	REC	100	1		%	++	0.003	0.02			
SREV	BARIUM	RSD	0.0295	1		mg/L	++	0.003	0.015			
SREV	BERYLLIUM	FOUND	2.041	1		mg/L	++	0.01	0.05			
SREV	BERYLLIUM	REC	102	1		%	++	0.01	0.05			
SREV	BERYLLIUM	RSD	0.0785	1		mg/L	++	0.01	0.05			
SREV	BISMUTH	FOUND	2.01	1		mg/L	++	0.04	0.2			
SREV	BISMUTH	REC	101	1		%	++	0.04	0.2			
SREV	BISMUTH	RSD	1.014	1		mg/L	++	0.04	0.2			
SREV	BORON	FOUND	2.098	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	105	1		%	++	0.01	0.05			
SREV	BORON	RSD	1.262	1		mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND	1.99	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND	2.001	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	REC	100	1		%	++	0.005	0.02			
SREV	CADMIUM	REC	100	1		%	++	0.005	0.02			
SREV	CADMIUM	RSD	0.7786	1		mg/L	++	0.005	0.015			
SREV	CADMIUM	RSD	0.6833	1		mg/L	++	0.005	0.015			
SREV	CALCIUM	FOUND	100.2	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	100	1		%	++	0.1	0.5			
SREV	CALCIUM	RSD	0.2737	1		mg/L	++	0.1	0.5			
SREV	CHROMIUM	FOUND	1.982	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	FOUND	1.967	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	REC	98	1		%	++	0.01	0.05			
SREV	CHROMIUM	REC	99	1		%	++	0.01	0.05			
SREV	CHROMIUM	RSD	0.8568	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	RSD	0.4612	1		mg/L	++	0.01	0.05			
SREV	COBALT	FOUND	1.983	1		mg/L	++	0.01	0.05			
SREV	COBALT	REC	99	1		%	++	0.01	0.05			
SREV	COBALT	RSD	0.3469	1		mg/L	++	0.01	0.05			
SREV	COPPER	FOUND	2.009	1		mg/L	++	0.01	0.05			
SREV	COPPER	REC	100	1		%	++	0.01	0.05			
SREV	COPPER	RSD	0.7925	1		mg/L	++	0.01	0.05			
SREV	GALLIUM	FOUND	2	1		mg/L	++	0.1	0.5			
SREV	GALLIUM	REC	100	1		%	++	0.1	0.5			
SREV	GALLIUM	RSD	0.9871	1		mg/L	++	0.1	0.5			

SREV	IRON	FOUND	1.999	1	mg/L	++	0.02	0.05
SREV	IRON	FOUND	2.002	1	mg/L	++	0.02	0.05
SREV	IRON	REC	100	1	%	++	0.02	0.05
SREV	IRON	REC	100	1	%	++	0.02	0.05
SREV	IRON	RSD	0.0114	1	mg/L	++	0.02	0.05
SREV	IRON	RSD	0.0609	1	mg/L	++	0.02	0.05
SREV	LEAD	FOUND	3.926	1	mg/L	++	0.03	0.2
SREV	LEAD	REC	98	1	%	++	0.03	0.2
SREV	LEAD	RSD	1.224	1	mg/L	++	0.03	0.15
SREV	LITHIUM	FOUND	2.044	1	mg/L	++	0.008	0.04
SREV	LITHIUM	REC	102	1	%	++	0.008	0.04
SREV	LITHIUM	RSD	0.1142	1	mg/L	++	0.008	0.04
SREV	MAGNESIUM	FOUND	99.73	1	mg/L	++	0.2	1
SREV	MAGNESIUM	REC	100	1	%	++	0.2	1
SREV	MAGNESIUM	RSD	0.3763	1	mg/L	++	0.2	1
SREV	MANGANESE	FOUND	1.985	1	mg/L	++	0.005	0.03
SREV	MANGANESE	REC	99	1	%	++	0.005	0.03
SREV	MANGANESE	RSD	0.2599	1	mg/L	++	0.005	0.025
SREV	MOLYBDENUM	FOUND	2.067	1	mg/L	++	0.02	0.1
SREV	MOLYBDENUM	REC	103	1	%	++	0.02	0.1
SREV	MOLYBDENUM	RSD	1.309	1	mg/L	++	0.02	0.1
SREV	NICKEL	FOUND	1.979	1	mg/L	++	0.008	0.04
SREV	NICKEL	REC	99	1	%	++	0.008	0.04
SREV	NICKEL	RSD	0.8634	1	mg/L	++	0.008	0.04
SREV	PHOSPHORUS	FOUND	5.07	1	mg/L	++	0.1	0.5
SREV	PHOSPHORUS	REC	101	1	%	++	0.1	0.5
SREV	PHOSPHORUS	RSD	0.6933	1	mg/L	++	0.1	0.5
SREV	POTASSIUM	FOUND	20.22	1	mg/L	++	0.2	1
SREV	POTASSIUM	REC	101	1	%	++	0.2	1
SREV	POTASSIUM	RSD	0.1325	1	mg/L	++	0.2	1
SREV	SCANDIUM	FOUND	2.01	1	mg/L	++	0.1	0.5
SREV	SCANDIUM	REC	101	1	%	++	0.1	0.5
SREV	SCANDIUM	RSD	0.0849	1	mg/L	++	0.1	0.5
SREV	SELENIUM	FOUND	3.997	1	mg/L	++	0.05	0.3
SREV	SELENIUM	REC	100	1	%	++	0.05	0.3
SREV	SELENIUM	RSD	0.9222	1	mg/L	++	0.05	0.25
SREV	SILICA	FOUND	41.51	1	mg/L	++	0.2	1
SREV	SILICA	REC	97	1	%	++	0.2	1
SREV	SILICA	RSD	0.0037	1	mg/L	++	0.214	1.07
SREV	SILVER	FOUND	1.009	1	mg/L	++	0.01	0.03
SREV	SILVER	REC	101	1	%	++	0.01	0.03
SREV	SILVER	RSD	0.207	1	mg/L	++	0.01	0.025
SREV	SODIUM	FOUND	100.6	1	mg/L	++	0.2	1
SREV	SODIUM	REC	101	1	%	++	0.2	1
SREV	SODIUM	RSD	0.3076	1	mg/L	++	0.2	1
SREV	STRONTIUM	FOUND	2.014	1	mg/L	++	0.005	0.03
SREV	STRONTIUM	REC	101	1	%	++	0.005	0.03
SREV	STRONTIUM	RSD	0.2119	1	mg/L	++	0.005	0.025
SREV	SULFUR	FOUND	49.23	1	mg/L	++	0.3	1
SREV	SULFUR	REC	98	1	%	++	0.3	1
SREV	SULFUR	RSD	1.138	1	mg/L	++	0.25	1.25
SREV	THALLIUM	FOUND	3.95	1	mg/L	++	0.1	0.5
SREV	THALLIUM	REC	99	1	%	++	0.1	0.5
SREV	THALLIUM	RSD	0.4564	1	mg/L	++	0.1	0.5
SREV	TIN	FOUND	2.029	1	mg/L	++	0.04	0.2
SREV	TIN	REC	101	1	%	++	0.04	0.2
SREV	TIN	RSD	0.8474	1	mg/L	++	0.04	0.2

SREV	TITANIUM	FOUND	2	1		mg/L	++	0.005	0.03
SREV	TITANIUM	REC	100	1		%	++	0.005	0.03
SREV	TITANIUM	RSD	0.0077	1		mg/L	++	0.005	0.025
SREV	VANADIUM	FOUND	2.031	1		mg/L	++	0.005	0.03
SREV	VANADIUM	REC	102	1		%	++	0.005	0.03
SREV	VANADIUM	RSD	0.0955	1		mg/L	++	0.005	0.025
SREV	YTTRIUM	REC	98.01	1		%	++	0.001	0.005
SREV	ZINC	FOUND	2.021	1		mg/L	++	0.01	0.05
SREV	ZINC	FOUND	1.959	1		mg/L	++	0.01	0.05
SREV	ZINC	REC	101	1		%	++	0.01	0.05
SREV	ZINC	REC	98	1		%	++	0.01	0.05
SREV	ZINC	RSD	0.4517	1		mg/L	++	0.01	0.05
SREV	ZINC	RSD	0.6056	1		mg/L	++	0.01	0.05

WG416282ICB

Tag:

Measured: 1/16/2017 4:51:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ALUMINUM	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	BARIUM	FOUND		1	U	mg/L	++	0.003	0.02			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	BISMUTH	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	CHROMIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CHROMIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	COBALT	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	COPPER	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	GALLIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	IRON	FOUND		1	U	mg/L	++	0.02	0.05			
SREV	IRON	FOUND		1	U	mg/L	++	0.02	0.05			
SREV	LEAD	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	LITHIUM	FOUND		1	U	mg/L	++	0.008	0.04			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	MANGANESE	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.02	0.1			
SREV	NICKEL	FOUND		1	U	mg/L	++	0.008	0.04			
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SCANDIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.05	0.3			
SREV	SILICA	FOUND		1	U	mg/L	++	0.2	1			
SREV	SILVER	FOUND		1	U	mg/L	++	0.01	0.03			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	STRONTIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	SULFUR	FOUND		1	U	mg/L	++	0.3	1			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	TIN	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	TITANIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	VANADIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	YTTRIUM	REC	99.55	1		%	++	0.001	0.005			
SREV	ZINC	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	ZINC	FOUND		1	U	mg/L	++	0.01	0.05			

WG416282PQV

Tag: Measured: 1/16/2017 4:54:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	0.52	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	104	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.82	1		%	++	0.001	0.005			

WG416282ICSAB

Tag: Measured: 1/16/2017 4:58:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	4.9	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	98	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.03	1		%	++	0.001	0.005			

WG415785PBS

Tag: 2 Measured: 1/16/2017 5:04:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		100	U	mg/Kg	++	10	50			
SREV	YTTRIUM	REC	98.48	100		%	++	0.001	0.005			

WG415785LCSS2

Tag: 2 Measured: 1/16/2017 5:07:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	683	100		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	81	100		%	++	10	50			
SREV	YTTRIUM	REC	106.51	100		%	++	0.001	0.005			

WG415785LCSSD

Tag: 2 Measured: 1/16/2017 5:10:38 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	690	100		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	82	100		%	++	10	50			
SREV	PHOSPHORUS	RPD	1	100		%	++	10	50			
SREV	YTTRIUM	REC	107.59	100		%	++	0.001	0.005			

L34445-01

Tag: 3 Measured: 1/16/2017 5:13:44 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	9100	505		mg/Kg	++	50	300		M3	
NEED	YTTRIUM	REC	106	505		%	++	0.001	0.005			

L34445-01SDL

Tag: Measured: 1/16/2017 5:16:52 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	D	5	505		%	++	50	300			
SREV	PHOSPHORUS	FOUND	1915	505		mg/Kg	++	50	300			
SREV	PHOSPHORUS	REG	9575	505		mg/Kg	++	50	300			
SREV	YTTRIUM	REC	103.52	505		%	++	0.001	0.005			

L34445-04

Tag: 3 Measured: 1/16/2017 5:20:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	10700	510		mg/Kg	++	50	300		M3	
NEED	YTTRIUM	REC	106	510		%	++	0.001	0.005			

L34445-04MS

Tag: 2 Measured: 1/16/2017 5:23:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	10863	510		mg/Kg	++	50	300			
SREV	PHOSPHORUS	REC	160	510		%	ALRT	50	300		M3	
SREV	YTTRIUM	REC	106.16	510		%	++	0.001	0.005			

L34445-04MSD

Tag: 2 Measured: 1/16/2017 5:26:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	10715	510		mg/Kg	++	50	300			
SREV	PHOSPHORUS	REC	15	510		%	ALRT	50	300		M3	
SREV	PHOSPHORUS	RPD	1	510		%	++	50	300			
SREV	YTTRIUM	REC	105.82	510		%	++	0.001	0.005			

WG416282CCV

Tag: Measured: 1/16/2017 5:29:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	2.67	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	107	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	99.71	1		%	++	0.001	0.005			

WG416282CCB

Tag: Measured: 1/16/2017 5:32:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	YTTRIUM	REC	101.84	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/16/2017 16:36:09 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0001**	**-.0003**	**.0000**	**.0000**	**.0027**	**-.0043**	**.0001**	**-.0058**	**-.0001**
Stddev	.0000	.0001	.0000	.0000	.0000	.0000	.0000	.0001	.0000
%RSD	27.79	38.01	165.8	297.0	1.301	.9653	20.15	1.670	6.504
#1	-.0001	-.0003	-.0000	-.0000	.0027	-.0044	.0001	-.0057	-.0001
#2	-.0001	-.0002	.0000	.0000	.0028	-.0043	.0001	-.0058	-.0001

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0001**	**.0000**	**.0000**	**.0001**	**.0003**	**.0001**	**.0002**	**.0001**	**.0046**
Stddev	.0000	.0001	.0000	.0001	.0000	.0000	.0000	.0000	.0001
%RSD	32.83	349.5	449.0	133.7	3.956	8.910	28.28	42.82	3.017
#1	.0001	-.0000	-.0000	.0000	.0003	.0001	.0002	.0001	.0047
#2	.0001	.0001	.0000	.0002	.0003	.0001	.0001	.0001	.0045

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0024**	**-.0001**	**.0001**	**.0000**	**.0073**	**.0000**	**-.0000**	**.0001**	**.0001**
Stddev	.0001	.0000	.0000	.0000	.0006	.0000	.0000	.0001	.0000
%RSD	2.892	89.36	29.94	73.24	8.043	44.44	141.4	101.8	17.28
#1	-.0025	-.0000	.0001	.0000	.0077	.0001	.0000	.0000	.0001
#2	-.0024	-.0001	.0002	.0000	.0068	.0000	-.0000	.0001	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0001**	**.0005**	**-.0000**	**.0004**	**.0004**	**.0000**	**.0007**	**.0001**	**-.0000**
Stddev	.0000	.0001	.0000	.0000	.0000	.0000	.0003	.0001	.0000
%RSD	11.91	19.45	607.4	5.870	5.870	27.71	42.00	122.6	69.21
#1	.0001	.0004	.0000	.0004	.0004	.0000	.0005	.0000	-.0000
#2	.0001	.0005	-.0000	.0005	.0005	.0000	.0009	.0002	-.0000

Sample Name: Blank Acquired: 1/16/2017 16:36:09 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	-.0004	-.0000	.0001
Stddev	.0001	.0000	.0000
%RSD	16.48	21.22	14.04
#1	-.0003	-.0000	.0001
#2	-.0004	-.0000	.0001

Int. Std.	Y_3710
Units	Cts/S
Avg	15694.
Stddev	71.
%RSD	.44946
#1	15744.
#2	15644.

Sample Name: WG415785LCSS2 Acquired: 1/16/2017 17:07:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416282

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0412	176.9	.8999	.0641	1.818	.0106	.0212	146.0	.4604
Stddev	.0038	.0	.0162	.0006	.000	.0000	.0145	.3	.0021
%RSD	9.195	.0056	1.798	.9178	.0130	.3944	68.27	.2162	.4492
#1	.0385	176.9	.8884	.0637	1.818	.0106	.0110	145.7	.4589
#2	.0438	176.9	.9113	.0646	1.818	.0106	.0315	146.2	.4618

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4617	.0655	.2054	.1941	1.203	192.3	190.7	.0544	44.38
Stddev	.0023	.0061	.0012	.0045	.002	.4	.3	.0074	.04
%RSD	.4962	9.255	.5685	2.305	.1890	.2101	.1539	13.68	.0809
#1	.4600	.0612	.2062	.1972	1.201	192.0	190.5	.0492	44.35
#2	.4633	.0697	.2046	.1909	1.204	192.6	190.9	.0597	44.40

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1391	61.83	4.701	.0042	1.486	.1531	6.833	11.90	3.184
Stddev	.0002	.18	.014	.0027	.012	.0020	.057	.11	.021
%RSD	.1746	.2856	.2868	63.54	.8136	1.299	.8279	.9183	.6658
#1	.1390	61.70	4.691	.0060	1.494	.1517	6.793	11.83	3.169
#2	.1393	61.95	4.710	.0023	1.477	.1545	6.873	11.98	3.199

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0219	.0315	.0129	20.67	44.24	.0558	.3534	4.857	-.0307
Stddev	.0110	.0001	.0356	.04	.10	.0214	.0004	.004	.0362
%RSD	49.90	.4224	276.5	.2148	.2148	38.31	.1126	.0915	117.9
#1	.0142	.0316	-.0123	20.64	44.17	.0407	.3537	4.860	-.0051
#2	.0297	.0314	.0381	20.70	44.31	.0709	.3531	4.854	-.0563

Sample Name: WG415785LCSS2 Acquired: 1/16/2017 17:07:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416282

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3901	3.350	3.480
Stddev	.0004	.022	.029
%RSD	.1020	.6437	.8355
#1	.3898	3.334	3.459
#2	.3904	3.365	3.500

Int. Std.	Y_3710
Units	Cts/S
Avg	16715.
Stddev	29.
%RSD	.17312
#1	16735.
#2	16694.

Sample Name: CalStd-1 Acquired: 1/16/2017 16:39:20 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0190**	**.1069**	**.0035**	**.0226**	**2.815**	**1.308**	**.0049**	**.0347**	**.0475**
Stddev	.0000	.0000	.0000	.0001	.003	.001	.0001	.0000	.0001
%RSD	.0410	.0274	.0959	.6272	.0913	.0922	1.399	.0893	.1599
#1	.0190	.1069	.0035	.0227	2.817	1.307	.0048	.0346	.0474
#2	.0190	.1069	.0035	.0225	2.813	1.309	.0049	.0347	.0475

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0420**	**.0148**	**.0518**	**.0695**	**.0405**	**.0331**	**.0855**	**.0030**	**.1066**
Stddev	.0000	.0000	.0001	.0002	.0001	.0000	.0001	.0001	.0001
%RSD	.1172	.2051	.1784	.2593	.3648	.0776	.0911	2.866	.0934
#1	.0421	.0149	.0518	.0694	.0406	.0330	.0856	.0029	.1065
#2	.0420	.0148	.0517	.0696	.0404	.0331	.0855	.0031	.1066

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.6085**	**.0170**	**.2056**	**.0112**	**.0985**	**.0030**	**.0074**	**.0029**	**.0021**
Stddev	.0010	.0000	.0001	.0001	.0000	.0000	.0000	.0000	.0000
%RSD	.1608	.2674	.0391	.5174	.0197	.7050	.6198	.8802	.0006
#1	.6092	.0169	.2057	.0113	.0985	.0031	.0074	.0029	.0021
#2	.6078	.0170	.2055	.0112	.0986	.0030	.0073	.0029	.0021

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.6515**	**.0034**	**.0303**	**.0303**	**.0057**	**1.985**	**.0720**	**.0078**	**.0165**
Stddev	.0006	.0000	.0001	.0001	.0000	.002	.0001	.0001	.0001
%RSD	.0986	.0995	.1761	.1761	.4517	.0899	.1949	1.418	.5123
#1	.6510	.0034	.0303	.0303	.0057	1.987	.0719	.0079	.0165
#2	.6519	.0034	.0304	.0304	.0057	1.984	.0721	.0078	.0166

Sample Name: CalStd-1 Acquired: 1/16/2017 16:39:20 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0168	.0254
Stddev	.0001	.0000
%RSD	.3699	.1370
#1	.0168	.0254
#2	.0169	.0254

Int. Std.	Y_3710
Units	Cts/S
Avg	15739.
Stddev	65.
%RSD	.40991
#1	15784.
#2	15693.

Sample Name: CalStd-2 Acquired: 1/16/2017 16:42:25 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0376	.2127	.0069	.0444	5.587	2.625	.0095	.0742	.0937
Stddev	.0002	.0006	.0000	.0000	.017	.007	.0000	.0001	.0003
%RSD	.5352	.2945	.0645	.0973	.2979	.2734	.1806	.1735	.3290
#1	.0377	.2132	.0069	.0444	5.599	2.630	.0095	.0741	.0935
#2	.0375	.2123	.0069	.0445	5.575	2.620	.0095	.0742	.0939

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0832	.0291	.1018	.1376	.0800	.0648	.1692	.0057	.2053
Stddev	.0004	.0000	.0001	.0006	.0005	.0000	.0003	.0002	.0009
%RSD	.5320	.0256	.1155	.4138	.6782	.0431	.1876	2.718	.4532
#1	.0829	.0291	.1017	.1380	.0804	.0648	.1694	.0058	.2060
#2	.0835	.0291	.1019	.1372	.0797	.0647	.1690	.0056	.2047

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.204	.0337	.4044	.0221	.1884	.0060	.0144	.0057	.0040
Stddev	.006	.0000	.0007	.0000	.0002	.0000	.0001	.0000	.0000
%RSD	.5358	.0674	.1637	.2017	.0876	.1254	.6268	.5321	.1899
#1	1.208	.0337	.4048	.0221	.1885	.0060	.0144	.0056	.0040
#2	1.199	.0336	.4039	.0221	.1883	.0059	.0145	.0057	.0040

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.291	.0068	.0596	.0596	.0113	3.955	.1432	.0155	.0334
Stddev	.004	.0000	.0001	.0001	.0000	.011	.0004	.0000	.0002
%RSD	.3496	.5263	.1201	.1201	.3051	.2767	.2488	.1430	.6787
#1	1.295	.0069	.0596	.0596	.0112	3.963	.1434	.0155	.0336
#2	1.288	.0068	.0595	.0595	.0113	3.947	.1429	.0154	.0332

Sample Name: CalStd-2 Acquired: 1/16/2017 16:42:25 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0330	.0500
Stddev	.0001	.0001
%RSD	.2043	.2503
#1	.0330	.0499
#2	.0331	.0501

Int. Std.	Y_3710
Units	Cts/S
Avg	16036.
Stddev	35.
%RSD	.22028
#1	16061.
#2	16011.

Sample Name: CalStd-3 Acquired: 1/16/2017 16:45:28 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.564	2.044	.3435	9.275	.0205	.0570
Stddev	.002	.002	.0003	.004	.0002	.0002
%RSD	.1318	.0940	.0782	.0465	.7335	.4287
#1	1.565	2.045	.3434	9.278	.0204	.0568
#2	1.562	2.042	.3437	9.272	.0206	.0571

Int. Std.	Y_3710
Units	Cts/S
Avg	15336.
Stddev	161.
%RSD	1.0493
#1	15450.
#2	15223.

Sample Name: ICV Acquired: 1/16/2017 16:48:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.009	2.066	3.999	2.098	2.008	2.041	2.010	100.2	1.990
Stddev	.002	.002	.006	.026	.001	.002	.020	.3	.016
%RSD	.2070	.0848	.1476	1.262	.0295	.0785	1.014	.2737	.7786
#1	1.008	2.065	3.995	2.079	2.008	2.042	1.995	99.96	1.979
#2	1.011	2.067	4.003	2.116	2.007	2.040	2.024	100.4	2.001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.001	1.983	1.982	1.967	2.009	1.999	2.002	1.997	20.22
Stddev	.014	.007	.017	.009	.016	.000	.001	.020	.03
%RSD	.6833	.3469	.8568	.4612	.7925	.0114	.0609	.9871	.1325
#1	1.991	1.978	1.970	1.960	2.021	1.999	2.001	1.983	20.20
#2	2.010	1.988	1.994	1.973	1.998	1.999	2.003	2.011	20.24
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.044	99.73	1.985	2.067	100.6	1.979	5.065	3.926	49.23
Stddev	.002	.38	.005	.027	.3	.017	.035	.048	.56
%RSD	.1142	.3763	.2599	1.309	.3076	.8634	.6933	1.224	1.138
#1	2.045	99.47	1.982	2.048	100.8	1.967	5.040	3.892	48.83
#2	2.042	100.0	1.989	2.086	100.3	1.991	5.090	3.960	49.62
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICV Acquired: 1/16/2017 16:48:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.182**	**2.014**	**3.997**	**19.40**	F **41.51**	**2.029**	**2.014**	**2.000**	**3.948**
Stddev	.060	.002	.037	.00	.00	.017	.004	.000	.018
%RSD	1.444	.0849	.9222	.0037	.0037	.8474	.2119	.0077	.4564
#1	4.139	2.016	4.023	19.40	41.51	2.016	2.018	2.000	3.961
#2	4.224	2.013	3.971	19.40	41.51	2.041	2.011	2.000	3.935
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					20.00				
Range					5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**2.031**	**1.959**	**2.021**
Stddev	.002	.009	.012
%RSD	.0955	.4517	.6056
#1	2.030	1.953	2.012
#2	2.033	1.965	2.029
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**15382.**
Stddev	130.
%RSD	.84657
#1	15474.
#2	15289.

Sample Name: ICB Acquired: 1/16/2017 16:51:40 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0008**	**-.0024**	**-.0206**	**-.0048**	**-.0014**	**.0015**	**-.0065**	**-.0193**	**-.0038**
Stddev	.0021	.0058	.0198	.0010	.0000	.0002	.0107	.0052	.0000
%RSD	283.6	245.2	96.21	21.51	.8888	14.09	164.3	26.74	.9525
#1	-.0023	.0017	-.0066	-.0041	-.0014	.0014	.0010	-.0229	-.0037
#2	.0008	-.0065	-.0346	-.0056	-.0014	.0016	-.0140	-.0156	-.0038
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0028**	**-.0062**	**-.0133**	**-.0061**	**-.0012**	**-.0145**	**-.0065**	**.0170**	**.0432**
Stddev	.0001	.0003	.0000	.0020	.0050	.0028	.0022	.0041	.0066
%RSD	4.297	5.308	.3612	32.85	405.4	19.19	34.46	24.25	15.36
#1	-.0029	-.0060	-.0134	-.0075	.0023	-.0125	-.0081	.0141	.0479
#2	-.0027	-.0065	-.0133	-.0047	-.0047	-.0165	-.0049	.0199	.0385
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0034**	**.1352**	**-.0050**	**-.0041**	**.0533**	**.0003**	**-.0098**	**-.0133**	**.0615**
Stddev	.0006	.0476	.0006	.0005	.0069	.0035	.0254	.0014	.0099
%RSD	18.85	35.19	11.72	11.08	12.87	1199.	259.2	10.49	16.07
#1	-.0039	.1689	-.0054	-.0038	.0484	.0028	-.0277	-.0143	.0545
#2	-.0030	.1016	-.0046	-.0044	.0581	-.0022	.0081	-.0123	.0684
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/16/2017 16:51:40 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0188**	**-.0020**	**-.0009**	**.0041**	**.0088**	**-.0285**	**-.0005**	**.0005**	**-.0375**
Stddev	.0077	.0003	.0051	.0079	.0170	.0022	.0002	.0008	.0106
%RSD	40.84	14.24	546.0	192.7	192.7	7.792	34.39	177.4	28.26
#1	-.0242	-.0022	.0027	.0097	.0208	-.0270	-.0006	-.0001	-.0300
#2	-.0134	-.0018	-.0045	-.0015	-.0032	-.0301	-.0004	.0011	-.0449
Check ?	Chk Pass	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	**.0015**	**-.0068**	**-.0044**
Stddev	.0030	.0004	.0001
%RSD	205.6	6.308	2.230
#1	-.0007	-.0071	-.0044
#2	.0036	-.0065	-.0043
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**15623.**
Stddev	49.
%RSD	.31054
#1	15658.
#2	15589.

Sample Name: PQV Acquired: 1/16/2017 16:54:53 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0230	.1555	.1923	.0463	.0135	.0527	.1968	.5124	.0114
Stddev	.0010	.0012	.0196	.0037	.0001	.0001	.0154	.0066	.0005
%RSD	4.439	.7797	10.17	7.885	.6638	.1717	7.803	1.287	4.255
#1	.0223	.1546	.2061	.0489	.0136	.0528	.1860	.5077	.0111
#2	.0237	.1563	.1785	.0437	.0135	.0527	.2077	.5170	.0118
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0122	.0464	.0380	.0462	.0502	.0365	.0434	.5536	1.101
Stddev	.0006	.0007	.0012	.0070	.0004	.0043	.0018	.0038	.003
%RSD	5.073	1.509	3.244	15.19	.7199	11.89	4.158	.6813	.2867
#1	.0127	.0469	.0372	.0512	.0504	.0395	.0447	.5509	1.103
#2	.0118	.0459	.0389	.0413	.0499	.0334	.0422	.5562	1.099
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0383	1.131	.0203	.1024	1.063	.0394	.5151	.1268	1.324
Stddev	.0012	.021	.0002	.0011	.004	.0000	.0000	.0022	.021
%RSD	3.089	1.823	.8323	1.122	.4095	.0696	.0088	1.719	1.568
#1	.0391	1.146	.0204	.1016	1.066	.0394	.5151	.1283	1.309
#2	.0374	1.117	.0201	.1032	1.060	.0394	.5152	.1252	1.339
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: PQV Acquired: 1/16/2017 16:54:53 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1199	.5144	.2395	.5211	F 1.115	.1966	.0249	.0250	.4951
Stddev	.0199	.0027	.0066	.0144	.031	.0009	.0000	.0005	.0092
%RSD	16.57	.5211	2.769	2.755	2.755	.4482	.1172	2.037	1.865
#1	.1059	.5163	.2442	.5313	1.137	.1960	.0249	.0246	.5016
#2	.1340	.5125	.2348	.5110	1.093	.1972	.0249	.0254	.4886
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0263	.0485	.0497
Stddev	.0010	.0001	.0011
%RSD	3.681	.1113	2.235
#1	.0256	.0484	.0505
#2	.0269	.0485	.0489
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15822.
Stddev	72.
%RSD	.45498
#1	15873.
#2	15771.

Sample Name: ICSAB Acquired: 1/16/2017 16:58:03 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4985	253.7	5.019	.5008	.2464	.2471	.5027	242.3	.4744
Stddev	.0007	.1	.017	.0013	.0003	.0002	.0304	.2	.0021
%RSD	.1328	.0471	.3413	.2533	.1154	.0624	6.054	.0843	.4454
#1	.4980	253.6	5.031	.4999	.2462	.2470	.4811	242.2	.4759
#2	.4989	253.8	5.007	.5017	.2466	.2472	.5242	242.4	.4729
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4809	.2327	.2380	.2313	.2462	95.26	95.00	.4823	25.18
Stddev	.0002	.0016	.0039	.0039	.0010	.02	.03	.0013	.03
%RSD	.0333	.7034	1.659	1.686	.4131	.0257	.0317	.2757	.1097
#1	.4808	.2339	.2352	.2341	.2455	95.28	94.98	.4833	25.20
#2	.4810	.2315	.2408	.2285	.2470	95.24	95.02	.4814	25.16
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5132	248.8	.2367	.4934	25.04	.4748	4.904	.4375	2.613
Stddev	.0000	.2	.0004	.0012	.01	.0001	.079	.0044	.030
%RSD	.0057	.0768	.1897	.2434	.0459	.0111	1.604	.9987	1.148
#1	.5132	248.6	.2364	.4943	25.04	.4748	4.848	.4344	2.592
#2	.5132	248.9	.2370	.4926	25.05	.4749	4.960	.4406	2.634
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/16/2017 16:58:03 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4917	.5057	5.020	2.543	F 5.441	2.410	.4971	.4981	2.373
Stddev	.0064	.0011	.018	.008	.018	.005	.0001	.0031	.020
%RSD	1.295	.2231	.3647	.3320	.3320	.2032	.0104	.6158	.8492
#1	.4872	.5049	5.033	2.548	5.454	2.407	.4971	.4959	2.359
#2	.4962	.5065	5.007	2.537	5.428	2.413	.4971	.5002	2.387
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2441	.4725	.4990
Stddev	.0050	.0019	.0009
%RSD	2.055	.3937	.1750
#1	.2477	.4712	.4996
#2	.2406	.4739	.4984
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15698.
Stddev	63.
%RSD	.39860
#1	15742.
#2	15654.

Sample Name: WASH Acquired: 1/16/2017 17:01:10 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0035**	**.0900**	**-.0308**	**-.0073**	**-.0023**	**.0008**	**.0064**	**.0175**	**-.0044**
Stddev	.0016	.0029	.0160	.0013	.0000	.0000	.0138	.0027	.0001
%RSD	46.88	3.229	51.80	17.81	.9763	6.028	217.2	15.65	1.337
#1	-.0046	.0880	-.0421	-.0064	-.0024	.0007	.0162	.0194	-.0045
#2	-.0023	.0921	-.0195	-.0082	-.0023	.0008	-.0034	.0155	-.0044
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0033**	**-.0070**	**-.0147**	**-.0091**	**-.0042**	**.0262**	**.0303**	**.0022**	**.0554**
Stddev	.0001	.0019	.0012	.0027	.0023	.0015	.0003	.0012	.0263
%RSD	3.594	26.84	8.323	30.20	54.40	5.649	1.043	55.58	47.56
#1	-.0033	-.0057	-.0156	-.0071	-.0059	.0252	.0305	.0030	.0367
#2	-.0034	-.0083	-.0139	-.0110	-.0026	.0273	.0301	.0013	.0740
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0045**	**.1853**	**-.0042**	**-.0033**	**.0108**	**-.0026**	**-.0076**	**-.0398**	**.0650**
Stddev	.0000	.0233	.0002	.0005	.0045	.0011	.0038	.0040	.0523
%RSD	.1453	12.56	5.233	13.58	41.59	40.80	49.87	9.965	80.49
#1	-.0045	.2018	-.0040	-.0030	.0076	-.0019	-.0049	-.0370	.0280
#2	-.0045	.1689	-.0044	-.0036	.0140	-.0034	-.0103	-.0426	.1020
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/16/2017 17:01:10 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0143	-.0026	-.0093	-.0022	-.0047	-.0141	-.0014	-.0004	-.0215
Stddev	.0113	.0003	.0370	.0032	.0068	.0074	.0000	.0006	.0037
%RSD	79.55	11.88	395.8	144.1	144.1	52.49	.5079	162.2	17.24
#1	-.0062	-.0029	.0168	-.0045	-.0096	-.0089	-.0014	.0001	-.0189
#2	-.0223	-.0024	-.0355	.0000	.0001	-.0193	-.0014	-.0008	-.0241
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0008	-.0069	-.0045
Stddev	.0023	.0002	.0001
%RSD	272.2	2.694	3.072
#1	-.0008	-.0071	-.0045
#2	.0025	-.0068	-.0044
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15824.
Stddev	127.
%RSD	.80240
#1	15914.
#2	15734.

Sample Name: WG415785PBS Acquired: 1/16/2017 17:04:21 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 100 Custom ID3:
Comment: WG416282

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0042	.0113	-.0251	-.0014	-.0023	.0005	-.0085	-.0534	-.0059
Stddev	.0011	.0005	.0025	.0042	.0000	.0000	.0208	.0056	.0004
%RSD	25.50	4.109	10.12	297.1	1.522	6.324	244.5	10.41	7.376
#1	-.0034	.0110	-.0233	-.0044	-.0024	.0006	.0062	-.0573	-.0056
#2	-.0049	.0117	-.0269	.0016	-.0023	.0005	-.0232	-.0494	-.0062

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0036	-.0077	-.0158	-.0043	-.0017	-.0138	-.0008	-.0012	.0804
Stddev	.0016	.0025	.0005	.0036	.0012	.0035	.0004	.0013	.0061
%RSD	43.13	32.19	3.110	83.90	73.81	25.16	47.89	111.8	7.620
#1	-.0025	-.0059	-.0162	-.0068	-.0008	-.0114	-.0010	-.0002	.0848
#2	-.0047	-.0094	-.0155	-.0017	-.0026	-.0163	-.0005	-.0021	.0761

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0042	.1087	-.0059	-.0036	.0213	-.0002	.0261	-.0222	.0416
Stddev	.0007	.0071	.0000	.0023	.0023	.0034	.0428	.0181	.0329
%RSD	17.76	6.523	.2878	63.92	10.68	1754.	164.0	81.30	79.13
#1	-.0047	.1037	-.0059	-.0053	.0229	.0022	-.0042	-.0095	.0648
#2	-.0037	.1137	-.0059	-.0020	.0197	-.0026	.0563	-.0350	.0183

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0350	-.0028	.0027	-.0078	-.0166	.0178	-.0015	-.0001	-.0221
Stddev	.0234	.0001	.0428	.0011	.0023	.0130	.0001	.0011	.0119
%RSD	66.99	4.163	1575.	13.54	13.54	72.95	3.691	835.5	53.67
#1	-.0184	-.0027	.0330	-.0070	-.0151	.0086	-.0015	.0006	-.0305
#2	-.0516	-.0028	-.0276	-.0085	-.0182	.0270	-.0014	-.0009	-.0137

Sample Name: WG415785PBS Acquired: 1/16/2017 17:04:21 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 100 Custom ID3:
Comment: WG416282

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0020	-.0046	-.0038
Stddev	.0051	.0009	.0016
%RSD	253.9	19.27	41.58
#1	-.0056	-.0039	-.0027
#2	.0016	-.0052	-.0049

Int. Std.	Y_3710
Units	Cts/S
Avg	15456.
Stddev	11.
%RSD	.07243
#1	15464.
#2	15448.

Sample Name: WG415785LCSSD2 Acquired: 1/16/2017 17:10:38 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416282

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0418	177.9	.8875	.0658	1.818	.0106	.0042	146.7	.4613
Stddev	.0001	.1	.0011	.0033	.002	.0001	.0181	.6	.0046
%RSD	.3192	.0806	.1267	5.010	.1132	.6549	432.6	.4235	1.007
#1	.0419	177.8	.8883	.0634	1.820	.0105	-.0086	146.2	.4580
#2	.0417	178.0	.8867	.0681	1.817	.0106	.0169	147.1	.4646

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4609	.0651	.2088	.1917	1.198	193.3	191.7	.0404	44.64
Stddev	.0039	.0020	.0070	.0029	.004	.5	.4	.0210	.09
%RSD	.8563	3.023	3.331	1.501	.3081	.2524	.2172	51.83	.1907
#1	.4582	.0665	.2039	.1938	1.195	192.9	191.4	.0553	44.70
#2	.4637	.0638	.2137	.1897	1.200	193.6	192.0	.0256	44.58

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1389	61.96	4.716	.0081	1.486	.1595	6.898	11.90	3.159
Stddev	.0008	.39	.001	.0011	.000	.0039	.059	.11	.018
%RSD	.5455	.6222	.0264	14.14	.0237	2.434	.8510	.9503	.5650
#1	.1384	61.68	4.715	.0073	1.487	.1567	6.856	11.82	3.146
#2	.1395	62.23	4.717	.0089	1.486	.1622	6.939	11.98	3.171

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0357	.0316	.0277	21.30	45.57	.0494	.3542	4.902	-.0293
Stddev	.0142	.0003	.0107	.04	.09	.0109	.0004	.005	.0085
%RSD	39.63	.9623	38.59	.2042	.2042	22.04	.1001	.0931	28.98
#1	.0257	.0314	.0202	21.27	45.51	.0417	.3545	4.899	-.0233
#2	.0458	.0318	.0353	21.33	45.64	.0571	.3540	4.905	-.0353

Sample Name: WG415785LCSSD2 Acquired: 1/16/2017 17:10:38 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416282

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3963	3.352	3.479
Stddev	.0070	.045	.034
%RSD	1.771	1.348	.9713
#1	.3914	3.320	3.455
#2	.4013	3.384	3.503

Int. Std.	Y_3710
Units	Cts/S
Avg	16885.
Stddev	100.
%RSD	.59126
#1	16956.
#2	16815.

Sample Name: L34445-01 Acquired: 1/16/2017 17:13:44 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 505 Custom ID3:
Comment: WG416282

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0019	43.16	.0095	.0159	.2918	.0030	-.0171	43.88	.0217
Stddev	.0004	.12	.0015	.0025	.0007	.0001	.0205	.15	.0002
%RSD	20.27	.2692	15.83	15.68	.2526	2.076	120.3	.3392	.7433
#1	-.0021	43.24	.0085	.0142	.2923	.0030	-.0025	43.99	.0218
#2	-.0016	43.08	.0106	.0177	.2913	.0029	-.0316	43.77	.0216

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0228	.0069	.2191	.2166	.0452	44.67	44.24	.0130	6.404
Stddev	.0002	.0000	.0033	.0029	.0021	.14	.13	.0129	.045
%RSD	.9148	.5573	1.484	1.321	4.669	.3081	.2963	99.51	.7107
#1	.0226	.0069	.2168	.2187	.0437	44.76	44.33	.0221	6.437
#2	.0229	.0069	.2214	.2146	.0467	44.57	44.15	.0038	6.372

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0347	9.041	1.438	.0035	.5771	.1288	18.01	.0055	.7467
Stddev	.0004	.044	.009	.0034	.0011	.0034	.07	.0051	.0175
%RSD	1.259	.4817	.6316	97.06	.1978	2.670	.3805	92.73	2.345
#1	.0344	9.072	1.444	.0011	.5763	.1263	17.96	.0019	.7591
#2	.0350	9.010	1.431	.0060	.5779	.1312	18.06	.0090	.7343

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0403	.0068	.0061	4.778	10.22	-.0115	.1625	1.151	-.0447
Stddev	.0176	.0002	.0030	.011	.02	.0047	.0006	.004	.0015
%RSD	43.70	3.069	48.56	.2192	.2192	40.61	.3434	.3033	3.385
#1	-.0527	.0070	.0040	4.785	10.24	-.0082	.1629	1.153	-.0436
#2	-.0278	.0067	.0082	4.771	10.21	-.0148	.1621	1.148	-.0458

Sample Name: L34445-01 Acquired: 1/16/2017 17:13:44 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 505 Custom ID3:
Comment: WG416282

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2863	.8887	.8865
Stddev	.0015	.0028	.0004
%RSD	.5145	.3130	.0434
#1	.2873	.8906	.8868
#2	.2852	.8867	.8863

Int. Std.	Y_3710
Units	Cts/S
Avg	16665.
Stddev	118.
%RSD	.70587
#1	16748.
#2	16582.

Sample Name: L34445-01SDL Acquired: 1/16/2017 17:16:52 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 505 Custom ID3:
Comment: WG416282

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0024	9.134	-.0042	-.0018	.0601	.0012	.0064	9.317	.0010
Stddev	.0038	.046	.0165	.0024	.0003	.0001	.0175	.061	.0002
%RSD	160.2	.5000	395.8	135.4	.4736	9.620	274.1	.6574	23.60
#1	.0003	9.166	-.0159	-.0035	.0604	.0012	-.0060	9.360	.0011
#2	-.0051	9.101	.0075	-.0001	.0599	.0011	.0188	9.273	.0008

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014	-.0036	.0355	.0361	.0062	9.519	9.456	.0256	1.401
Stddev	.0007	.0001	.0005	.0025	.0025	.073	.056	.0344	.015
%RSD	47.06	2.495	1.283	7.011	39.96	.7645	.5918	134.5	1.062
#1	.0019	-.0035	.0351	.0379	.0045	9.571	9.496	.0013	1.411
#2	.0009	-.0036	.0358	.0343	.0080	9.468	9.417	.0499	1.390

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0040	1.992	.3067	-.0018	.1262	.0271	3.792	-.0091	.1908
Stddev	.0008	.008	.0022	.0009	.0006	.0008	.038	.0202	.0171
%RSD	19.37	.4193	.7199	51.85	.4694	2.911	.9928	221.2	8.942
#1	.0035	1.998	.3083	-.0012	.1266	.0266	3.819	-.0234	.2029
#2	.0046	1.986	.3051	-.0025	.1258	.0277	3.766	.0051	.1787

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0338	-.0010	.0191	1.011	2.163	-.0117	.0332	.2415	-.0209
Stddev	.0046	.0000	.0029	.006	.013	.0100	.0001	.0012	.0047
%RSD	13.48	1.591	15.30	.5945	.5945	85.48	.2211	.5129	22.69
#1	-.0305	-.0010	.0212	1.015	2.172	-.0187	.0333	.2424	-.0175
#2	-.0370	-.0010	.0170	1.006	2.154	-.0046	.0332	.2407	-.0242

Sample Name: L34445-01SDL Acquired: 1/16/2017 17:16:52 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 505 Custom ID3:
Comment: WG416282

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0640	.1832	.1833
Stddev	.0044	.0025	.0011
%RSD	6.847	1.374	.5935
#1	.0671	.1814	.1841
#2	.0609	.1850	.1826

Int. Std.	Y_3710
Units	Cts/S
Avg	16247.
Stddev	36.
%RSD	.22067
#1	16273.
#2	16222.

Sample Name: L34445-04 Acquired: 1/16/2017 17:20:01 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 510 Custom ID3:
Comment: WG416282

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0013	44.12	.0028	.0279	.3109	.0031	-.0103	50.49	.0169
Stddev	.0009	.23	.0020	.0020	.0011	.0000	.0012	.28	.0007
%RSD	72.30	.5123	71.00	7.042	.3558	1.578	12.02	.5611	4.075
#1	-.0006	44.28	.0043	.0265	.3117	.0032	-.0112	50.69	.0164
#2	-.0019	43.96	.0014	.0293	.3101	.0031	-.0094	50.29	.0174

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0164	.0132	.2167	.2217	.0661	46.84	46.51	.0212	9.029
Stddev	.0000	.0003	.0028	.0025	.0015	.31	.31	.0089	.057
%RSD	.2737	2.413	1.302	1.148	2.241	.6546	.6686	42.14	.6264
#1	.0164	.0134	.2147	.2235	.0650	47.06	46.73	.0275	9.069
#2	.0164	.0129	.2187	.2199	.0671	46.63	46.29	.0149	8.989

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0415	11.67	2.717	.0071	.6126	.1383	20.94	.0044	.9020
Stddev	.0001	.00	.017	.0020	.0011	.0032	.06	.0244	.0054
%RSD	.3107	.0349	.6093	28.81	.1863	2.309	.3035	549.6	.5974
#1	.0414	11.67	2.729	.0086	.6134	.1405	20.89	.0217	.9059
#2	.0416	11.68	2.705	.0057	.6118	.1360	20.98	-.0128	.8982

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0284	.0087	.0098	4.386	9.386	-.0094	.2146	.7593	-.0234
Stddev	.0085	.0001	.0059	.008	.018	.0049	.0016	.0064	.0025
%RSD	29.90	1.453	60.25	.1909	.1909	52.18	.7667	.8444	10.48
#1	-.0224	.0088	.0056	4.392	9.399	-.0128	.2158	.7638	-.0217
#2	-.0343	.0086	.0139	4.380	9.374	-.0059	.2135	.7547	-.0251

Sample Name: L34445-04 Acquired: 1/16/2017 17:20:01 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 510 Custom ID3:
Comment: WG416282

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.1984	.7149	.7243
Stddev	.0045	.0021	.0048
%RSD	2.259	.2934	.6651
#1	.2016	.7164	.7209
#2	.1952	.7134	.7277

Int. Std.	Y_3710
Units	Cts/S
Avg	16687.
Stddev	115.
%RSD	.68762
#1	16768.
#2	16606.

Sample Name: L34445-04MS Acquired: 1/16/2017 17:23:09 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 510 Custom ID3:
Comment: WG416282

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0930	54.54	.1782	.1433	.4170	.0966	.1910	63.88	.1082
Stddev	.0019	.30	.0439	.0097	.0025	.0008	.0042	.51	.0011
%RSD	2.086	.5543	24.63	6.770	.5907	.8242	2.197	.7911	.9863
#1	.0943	54.75	.2092	.1365	.4187	.0971	.1881	64.24	.1074
#2	.0916	54.32	.1471	.1502	.4152	.0960	.1940	63.52	.1089

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1093	.1026	.3937	.4022	.1571	47.41	47.18	.1852	30.85
Stddev	.0015	.0002	.0042	.0021	.0017	.33	.29	.0073	.21
%RSD	1.404	.1970	1.072	.5326	1.086	.6997	.6143	3.966	.6884
#1	.1082	.1028	.3908	.4037	.1583	47.64	47.38	.1904	31.00
#2	.1104	.1025	.3967	.4007	.1559	47.17	46.97	.1800	30.70

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2351	21.29	2.845	.0987	18.88	.2305	21.30	.1940	1.731
Stddev	.0013	.15	.025	.0030	.14	.0038	.27	.0036	.014
%RSD	.5518	.6869	.8803	3.025	.7256	1.637	1.285	1.858	.7872
#1	.2360	21.40	2.862	.0965	18.98	.2278	21.10	.1966	1.722
#2	.2342	21.19	2.827	.1008	18.79	.2332	21.49	.1915	1.741

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1615	.1949	.1990	4.448	9.519	.1739	.2962	1.058	.3298
Stddev	.0036	.0017	.0139	.025	.052	.0056	.0020	.007	.0100
%RSD	2.231	.8522	6.966	.5520	.5520	3.201	.6786	.6795	3.039
#1	.1590	.1961	.2088	4.465	9.556	.1700	.2976	1.063	.3227
#2	.1641	.1938	.1892	4.431	9.481	.1778	.2947	1.053	.3369

Sample Name: L34445-04MS Acquired: 1/16/2017 17:23:09 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 510 Custom ID3:
Comment: WG416282

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3457	.7895	.8074
Stddev	.0008	.0085	.0111
%RSD	.2439	1.082	1.371
#1	.3463	.7835	.7996
#2	.3451	.7956	.8152

Int. Std.	Y_3710
Units	Cts/S
Avg	16660.
Stddev	86.
%RSD	.51499
#1	16721.
#2	16600.

Sample Name: L34445-04MSD Acquired: 1/16/2017 17:26:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 510 Custom ID3:
Comment: WG416282

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0958	55.72	.1814	.1471	.4166	.0991	.2071	63.17	.1104
Stddev	.0018	.02	.0008	.0055	.0010	.0001	.0366	.05	.0006
%RSD	1.907	.0383	.4329	3.770	.2427	.1294	17.69	.0739	.5854
#1	.0970	55.74	.1820	.1432	.4159	.0990	.1812	63.13	.1099
#2	.0945	55.71	.1809	.1511	.4173	.0992	.2330	63.20	.1109

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1108	.1052	.3979	.3982	.1620	48.12	47.63	.2315	31.63
Stddev	.0009	.0012	.0046	.0059	.0011	.03	.06	.0120	.08
%RSD	.7971	1.139	1.167	1.476	.6806	.0681	.1273	5.171	.2536
#1	.1102	.1043	.3946	.3940	.1612	48.10	47.59	.2230	31.57
#2	.1114	.1060	.4011	.4023	.1628	48.14	47.68	.2400	31.68

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2426	21.81	2.670	.1005	19.29	.2349	21.01	.1990	1.844
Stddev	.0013	.00	.006	.0015	.00	.0021	.25	.0138	.060
%RSD	.5403	.0025	.2142	1.468	.0041	.8745	1.179	6.940	3.255
#1	.2417	21.81	2.666	.0994	19.29	.2334	20.84	.1892	1.801
#2	.2435	21.81	2.674	.1015	19.29	.2364	21.19	.2087	1.886

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1818	.2001	.1978	4.677	10.01	.1899	.3028	1.091	.3544
Stddev	.0117	.0005	.0305	.012	.03	.0095	.0010	.002	.0079
%RSD	6.456	.2414	15.41	.2574	.2574	5.000	.3466	.1480	2.234
#1	.1735	.1997	.2194	4.668	9.990	.1966	.3020	1.090	.3600
#2	.1901	.2004	.1763	4.685	10.03	.1832	.3035	1.092	.3488

Sample Name: L34445-04MSD Acquired: 1/16/2017 17:26:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 510 Custom ID3:
Comment: WG416282

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3425	.8106	.8236
Stddev	.0025	.0078	.0105
%RSD	.7351	.9650	1.278
#1	.3443	.8050	.8162
#2	.3407	.8161	.8311

Int. Std.	Y_3710
Units	Cts/S
Avg	16608.
Stddev	149.
%RSD	.89935
#1	16714.
#2	16503.

Sample Name: CCV Acquired: 1/16/2017 17:29:24 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5082	1.026	2.037	1.029	.9935	1.015	.9948	49.97	.9982
Stddev	.0042	.006	.021	.002	.0032	.001	.0305	.04	.0073
%RSD	.8318	.6198	1.048	.1638	.3199	.1122	3.066	.0724	.7319
#1	.5052	1.022	2.022	1.028	.9957	1.016	.9732	49.95	.9930
#2	.5111	1.031	2.052	1.031	.9912	1.014	1.016	50.00	1.003
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.004	.9823	.9816	.9757	.9970	1.006	1.013	.9804	9.927
Stddev	.005	.0082	.0012	.0010	.0008	.002	.003	.0181	.016
%RSD	.4665	.8382	.1175	.1048	.0814	.1597	.2548	1.844	.1628
#1	1.000	.9765	.9808	.9750	.9965	1.007	1.015	.9932	9.938
#2	1.007	.9882	.9824	.9764	.9976	1.005	1.011	.9676	9.915
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.002	49.17	.9991	1.026	49.33	1.024	2.671	1.935	25.24
Stddev	.006	.08	.0026	.010	.10	.015	.002	.015	.23
%RSD	.5583	.1547	.2563	.9680	.1927	1.502	.0693	.7654	.9244
#1	1.006	49.23	1.001	1.019	49.40	1.013	2.669	1.925	25.08
#2	.9982	49.12	.9973	1.033	49.26	1.035	2.672	1.946	25.41
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/16/2017 17:29:24 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.108	1.001	2.025	9.847	F 21.07	1.035	.9956	1.017	1.974
Stddev	.028	.002	.049	.005	.01	.002	.0018	.002	.009
%RSD	1.321	.1682	2.429	.0533	.0533	.1855	.1827	.1734	.4338
#1	2.088	1.003	1.990	9.850	21.08	1.037	.9969	1.015	1.980
#2	2.128	1.000	2.060	9.843	21.06	1.034	.9943	1.018	1.968
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.013	.9827	.9969
Stddev	.002	.0008	.0084
%RSD	.1731	.0811	.8392
#1	1.012	.9821	.9909
#2	1.014	.9832	1.003
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15648.
Stddev	134.
%RSD	.85515
#1	15743.
#2	15554.

Sample Name: CCB Acquired: 1/16/2017 17:32:32 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0024**	**-.0039**	**-.0284**	**-.0077**	**-.0021**	**.0010**	**-.0088**	**-.0385**	**-.0044**
Stddev	.0000	.0041	.0094	.0006	.0000	.0000	.0047	.0091	.0008
%RSD	1.332	104.4	32.98	7.189	.4897	1.377	52.62	23.68	18.24
#1	-.0024	-.0010	-.0350	-.0073	-.0021	.0010	-.0056	-.0320	-.0049
#2	-.0024	-.0068	-.0218	-.0081	-.0021	.0010	-.0121	-.0449	-.0038
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0034**	**-.0062**	**-.0135**	**-.0094**	**-.0012**	**-.0112**	**-.0008**	**.0267**	**.0420**
Stddev	.0001	.0013	.0009	.0003	.0018	.0035	.0002	.0260	.0178
%RSD	3.974	21.41	6.653	2.673	147.2	31.22	22.27	97.40	42.27
#1	-.0035	-.0072	-.0141	-.0092	-.0025	-.0087	-.0006	.0083	.0546
#2	-.0033	-.0053	-.0128	-.0095	.0000	-.0136	-.0009	.0451	.0295
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0036**	**.1090**	**-.0055**	**-.0037**	**.0183**	**-.0028**	**.0039**	**-.0248**	**.0457**
Stddev	.0004	.0411	.0003	.0004	.0015	.0042	.0416	.0111	.0238
%RSD	10.19	37.67	4.578	11.04	8.474	154.0	1056.	44.53	52.05
#1	-.0039	.0800	-.0057	-.0034	.0172	-.0058	-.0255	-.0327	.0625
#2	-.0033	.1381	-.0053	-.0040	.0194	.0002	.0333	-.0170	.0289
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/16/2017 17:32:32 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0064	-.0025	.0185	-.0021	-.0046	-.0106	-.0010	-.0010	-.0224
Stddev	.0072	.0001	.0101	.0017	.0035	.0089	.0000	.0008	.0188
%RSD	112.3	3.979	54.60	77.24	77.24	83.98	3.565	76.07	83.88
#1	-.0013	-.0026	.0256	-.0010	-.0021	-.0043	-.0010	-.0005	-.0091
#2	-.0115	-.0025	.0114	-.0033	-.0071	-.0168	-.0011	-.0016	-.0357
Check ?	Chk Pass	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	.0012	-.0079	-.0059
Stddev	.0005	.0001	.0001
%RSD	39.00	1.036	1.790
#1	.0015	-.0079	-.0060
#2	.0009	-.0078	-.0058
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	15982.
Stddev	190.
%RSD	1.1884
#1	16117.
#2	15848.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52458	PCN	Nitric acid:	52458	PCN
Hydrochloric acid:	52395	PCN	Hydrochloric acid:	52395	PCN

VERIFIED BY: AEB 1/17/17

CEC

WG416336

ACZ Laboratories, Inc

QC List Type: QC-ICP-CEC
QCListMatClass: LIQUID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: MA-ICP-D-846
Group ID: MA-G-ICP_-CEC
Method Ref: M6010B
SOP Ref: SOPII012

Instrument ID: ICP8
Analyst: AEB
ACZ Dept: 33
Create Date: 01/17/2017 11:37
Start Date/Time: 1/17/17
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	Dilution	Comments
1	WG416336ICV	II170112-1			1		1	
2	WG416336ICB	NONE			1		1	
3	WG416336PQV	II161228-3			1		1	
4	WG416336ICSAB	II161031-5			1		1 20X	
5	WG416214PBS	NONE			1		1 ~~5X~~ AEB 1/18/17	
6	L34445-01	TP-6_7_9 (2-5)			1		1	
7	L34445-01DUP	NONE			1		1	
8	L34445-02	TP-12 (2-4)			1		1	
9	L34445-03	TP-15_16 (2-13)			1		1	
10	L34445-04	TP-20 (1-4)			1		1	
11	L34674-01	SB-06GT (1.5-10)			1		1	AEB 1/17/17
12	L34674-01AS	~~II170109-2~~ II CECSPIKE			1		1	
13	WG416336CCV1	II161227-1			1		1	
14	WG416336CCB1	NONE	AEB 1/18/17		1		1 20X	
15	L34674-01ASD	~~II170109-2~~ II CECSPIKE			1		1 ~~5X~~ AEB 1/18/17	
16	L34674-02	SB-07GT (0-4)			1		1	
17	L34674-03	SB-09GT (8-12)			1		1	
18	L34674-04	SB-09GT (18-22)			1		1	
19	L34674-04SDL	NONE			1		1	
20	L34674-05	SB-12GT (0-27)			1		1	
21	L34674-06	SB-13AL (0-25)			1		1	
22	L34674-07	SB-14AL (0-15)			1		1	
23	L34674-08	SB-15AL (0-25)			1		1	
24	L34674-09	SB-15AL (0-25)			1		1	

Report Comments: ~~5X~~ 20X dilutions due to ~~P~~ Y AEB 1/17/17
AEB 1/18/17

Internal Comments put to WIP. Y out - rerun on dilution AEB 1/18/17
changed spike scns to reflect different
L34445-170120162715 and reuploaded AEB 1/18/17

AREV: AEB 1/18/17
Initials, Date

SREV: 1-18-17
Initials, Date

CEC

QC List Type: QC-ICP-CEC
QCListMatClass: LIQUID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: MA-ICP-D-846
Group ID: MA-G-ICP_-CEC
Method Ref: M6010B
SOP Ref: SOPII012

WG416336

ACZ Laboratories, Inc

Instrument ID: ICP8
Analyst:
ACZ Dept: 33
Create Date: 01/17/2017 11:37
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	Dilution	Comments
25	WG416336CCV2	II161227-1			1		1	
26	WG416336CCB2	NONE			1		1	20 AEB 1/18/17
27	L34674-10	SB-15AL (25-50)			1		1 SX	AEB
28	L34674-14	SB-09GT (8-12-DUPLIC			1		1 1	1/17/17
29	WG416336CCV3	II161227-1						
30	WG416336CCB3	NONE						

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	UEB
Date:	1/18/17
Approved By:	[illegible]
Date:	1/18/17

Work Group:	WG416336
Sample Type:	CEC
Analysis Date:	1/18/17
Analyst:	UEB

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	✓		
2) Are all of the QC critera listed in LIMS within specified limits? **	✓		
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
5) Is a current standard/reagent form attached to the workgroup?	✓		
6) Have all dilutions performed at the bench been checked off on the benchsheet?	✓		
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			✓
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?	✓		
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			✓
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
	All Passing	

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416336

Date Reported: 18-Jan-17
Run ID: R1493733
Date Analyzed: 18-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416336ICV

Tag:

Measured: 1/18/2017 10:58:28 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	100.0	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	100	1		%	++	0.2	1			
SREV	SODIUM	RSD	0.316	1		mg/L	++	0.2	1			
SREV	YTTRIUM	REC	98.62	1		%	++	0.001	0.005			

WG416336ICB

Tag:

Measured: 1/18/2017 11:01:29 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	100.15	1		%	++	0.001	0.005			

WG416336PQV

Tag:

Measured: 1/18/2017 11:04:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	1.08	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	108	1		%	++	0.2	1			
SREV	YTTRIUM	REC	100.48	1		%	++	0.001	0.005			

WG416336ICSAB

Tag:

Measured: 1/18/2017 11:07:53 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	25.8	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	103	1		%	++	0.2	1			
SREV	YTTRIUM	REC	99.85	1		%	++	0.001	0.005			

WG416214PBS

Tag:

Measured: 1/18/2017 11:14:13 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND		20	U	meq/100g	++	0.435	2.18			
SREV	YTTRIUM	REC	265.325	20		meq/100g	++	0.0025	0.0125			

L34445-01

Tag:

Measured: 1/18/2017 11:17:25 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	18.6	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	273	20		meq/100g	++	0.0025	0.0125		TB	

L34445-01DUP

Tag:

Measured: 1/18/2017 11:20:37 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	20.1	20		meq/100g	++	0.435	2.18			
SREV	SODIUM	RPD	8	20		%	++	0.435	2.18			
SREV	YTTRIUM	REC	274.45	20		meq/100g	++	0.0025	0.0125			

L34445-02

Tag: Measured: 1/18/2017 11:23:49 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	21.9	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	280	20		meq/100g	++	0.0025	0.0125		TB	

L34445-03

Tag: Measured: 1/18/2017 11:27:01 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	15.3	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	281	20		meq/100g	++	0.0025	0.0125		TB	

L34445-04

Tag: Measured: 1/18/2017 11:30:13 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	17.4	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	275	20		meq/100g	++	0.0025	0.0125		TB	

L34674-01

Tag: Measured: 1/18/2017 11:33:26 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	20.1	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	273	20		meq/100g	++	0.0025	0.0125		TB	

L34674-01AS

Tag: Measured: 1/18/2017 11:36:38 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	232	20		meq/100g	++	0.435	2.18			
SREV	SODIUM	REC	97	20		%	++	0.435	2.18			
SREV	YTTRIUM	REC	267.2	20		meq/100g	ALRT	0.0025	0.0125			

L34674-01ASD

Tag: Measured: 1/18/2017 11:39:46 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	232	20		meq/100g	++	0.435	2.18			
SREV	SODIUM	REC	97	20		%	++	0.435	2.18			
SREV	SODIUM	RPD	0	20		%	++	0.435	2.18			
SREV	YTTRIUM	REC	269.35	20		meq/100g	ALRT	0.0025	0.0125			

L34674-02

Tag: Measured: 1/18/2017 11:42:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	22.5	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	284	20		meq/100g	++	0.0025	0.0125		TB	

WG416336CCV1

Tag: Measured: 1/18/2017 11:46:06 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	51.9	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	104	1		%	++	0.2	1			
SREV	YTTRIUM	REC	108.18	1		%	++	0.001	0.005			

WG416336CCB1

Tag: Measured: 1/18/2017 11:49:11 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	109.81	1		%	++	0.001	0.005			

L34674-03

Tag: Measured: 1/18/2017 11:52:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	14.6	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	282	20		meq/100g	++	0.0025	0.0125		TB	

L34674-04

Tag: Measured: 1/18/2017 11:55:37 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	17.1	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	294	20		meq/100g	++	0.0025	0.0125		TB	

L34674-04SDL

Tag: Measured: 1/18/2017 11:58:50 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	D	2.00	20		%	++	0.435	2.18			
SREV	SODIUM	FOUND	3.50	20		meq/100g	++	0.435	2.18			
SREV	SODIUM	REG	3.50	20		meq/100g	++	0.435	2.18			
SREV	YTTRIUM	REC	278.3	20		meq/100g	++	0.0025	0.0125			

L34674-05

Tag: Measured: 1/18/2017 12:02:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	18.0	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	280	20		meq/100g	++	0.0025	0.0125		TB	

L34674-06

Tag: Measured: 1/18/2017 12:05:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	9.58	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	283	20		meq/100g	++	0.0025	0.0125		TB	

L34674-07

Tag: Measured: 1/18/2017 12:08:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	19.5	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	283	20		meq/100g	++	0.0025	0.0125		TB	

L34674-08

Tag: Measured: 1/18/2017 12:11:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	17.8	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	283	20		meq/100g	++	0.0025	0.0125		TB	

L34674-09

Tag: Measured: 1/18/2017 12:14:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	10.3	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	284	20		meq/100g	++	0.0025	0.0125		TB	

L34674-10

Tag: Measured: 1/18/2017 12:18:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	5.77	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	283	20		meq/100g	++	0.0025	0.0125		TB	

L34674-14

Tag:

Measured: 1/18/2017 12:21:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	13.4	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	281	20		meq/100g	++	0.0025	0.0125		TB	

WG416336CCV2

Tag:

Measured: 1/18/2017 12:24:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	51.8	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	104	1		%	++	0.2	1			
SREV	YTTRIUM	REC	108.72	1		%	++	0.001	0.005			

WG416336CCB2

Tag:

Measured: 1/18/2017 12:27:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	110.96	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/18/2017 10:46:00 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0001**	**-.0001**	**.0000**	**.0000**	**.0013**	**-.0042**	**.0001**	**-.0055**	**-.0001**
Stddev	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0000
%RSD	45.38	51.63	228.6	24.51	1.352	.9337	53.30	2.190	27.91
#1	-.0000	-.0001	.0000	.0000	.0013	-.0041	.0001	-.0054	-.0001
#2	-.0001	-.0001	-.0000	.0000	.0013	-.0042	.0000	-.0056	-.0002

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0000**	**-.0000**	**.0000**	**.0001**	**.0003**	**.0002**	**.0001**	**.0001**	**.0049**
Stddev	.0000	.0000	.0000	.0000	.0001	.0000	.0000	.0000	.0005
%RSD	338.9	33.50	531.2	34.52	22.79	24.92	16.99	8.335	9.802
#1	-.0000	-.0000	-.0000	.0001	.0004	.0002	.0001	.0001	.0052
#2	.0000	-.0000	.0000	.0001	.0003	.0001	.0001	.0001	.0045

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0018**	**-.0001**	**.0001**	**.0001**	**.0067**	**.0000**	**.0000**	**.0001**	**.0001**
Stddev	.0001	.0001	.0000	.0000	.0002	.0000	.0001	.0000	.0000
%RSD	7.544	54.07	15.40	39.35	2.690	75.39	212.5	15.16	27.19
#1	-.0017	-.0002	.0002	.0000	.0068	.0000	-.0000	.0001	.0001
#2	-.0019	-.0001	.0001	.0001	.0066	.0000	.0001	.0001	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0002**	**.0000**	**.0005**	**.0005**	**.0000**	**.0002**	**.0001**	**-.0000**
Stddev	.0000	.0000	.0000	.0001	.0001	.0000	.0002	.0002	.0000
%RSD	30.01	9.323	97.98	20.51	20.51	143.3	85.08	202.4	4.046
#1	.0001	.0002	.0000	.0005	.0005	.0000	.0001	.0002	-.0000
#2	.0000	.0002	.0000	.0004	.0004	-.0000	.0004	-.0000	-.0001

Sample Name: Blank Acquired: 1/18/2017 10:46:00 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**-.0003**	**-.0000**	**.0001**
Stddev	.0001	.0000	.0000
%RSD	32.76	174.2	39.55
#1	-.0003	.0000	.0001
#2	-.0002	-.0000	.0001

Int. Std.	Y_3710
Units	Cts/S
Avg	**16437.**
Stddev	187.
%RSD	1.1372
#1	16569.
#2	16305.

Sample Name: CalStd-1 Acquired: 1/18/2017 10:49:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0201**	**.1132**	**.0037**	**.0247**	**2.956**	**1.381**	**.0051**	**.0358**	**.0503**
Stddev	.0000	.0012	.0000	.0004	.031	.015	.0001	.0002	.0008
%RSD	.2202	1.097	1.314	1.490	1.052	1.110	2.059	.4955	1.613
#1	.0201	.1123	.0036	.0244	2.934	1.370	.0051	.0356	.0497
#2	.0200	.1141	.0037	.0249	2.978	1.391	.0052	.0359	.0508

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0443**	**.0154**	**.0538**	**.0716**	**.0425**	**.0345**	**.0894**	**.0031**	**.1131**
Stddev	.0009	.0002	.0009	.0010	.0010	.0001	.0008	.0002	.0010
%RSD	2.001	1.591	1.749	1.337	2.305	.2579	.9280	4.950	.9120
#1	.0437	.0152	.0531	.0709	.0418	.0344	.0888	.0030	.1124
#2	.0449	.0156	.0545	.0723	.0432	.0346	.0900	.0032	.1139

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.6520**	**.0178**	**.2152**	**.0117**	**.1017**	**.0031**	**.0076**	**.0031**	**.0021**
Stddev	.0071	.0002	.0019	.0002	.0014	.0000	.0001	.0001	.0000
%RSD	1.085	1.019	.8716	1.361	1.357	1.579	1.104	1.666	2.116
#1	.6470	.0177	.2139	.0116	.1007	.0031	.0076	.0031	.0021
#2	.6570	.0179	.2165	.0118	.1027	.0031	.0077	.0031	.0021

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.6808**	**.0036**	**.0319**	**.0319**	**.0059**	**2.095**	**.0753**	**.0082**	**.0173**
Stddev	.0068	.0001	.0004	.0004	.0001	.023	.0008	.0002	.0002
%RSD	.9942	1.781	1.139	1.139	1.453	1.095	1.112	2.412	.8755
#1	.6760	.0035	.0316	.0316	.0059	2.079	.0747	.0081	.0172
#2	.6856	.0036	.0321	.0321	.0060	2.111	.0759	.0084	.0174

Sample Name: CalStd-1 Acquired: 1/18/2017 10:49:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0177	.0268
Stddev	.0002	.0004
%RSD	1.193	1.425
#1	.0175	.0265
#2	.0178	.0270

Int. Std.	Y_3710
Units	Cts/S
Avg	16459.
Stddev	293.
%RSD	1.7772
#1	16666.
#2	16253.

Sample Name: L34674-14 Acquired: 1/18/2017 12:21:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0024**	**.0261**	**-.0139**	**-.0038**	**.0262**	**.0043**	**.0129**	**.5889**	**-.0013**
Stddev	.0038	.0002	.0079	.0007	.0000	.0000	.0128	.0069	.0001
%RSD	159.6	.8929	56.67	17.21	.0374	.6064	99.13	1.171	7.081
#1	-.0051	.0263	-.0194	-.0034	.0262	.0042	.0220	.5938	-.0014
#2	.0003	.0259	-.0083	-.0043	.0262	.0043	.0039	.5840	-.0012

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**.0020**	**-.0032**	**.0031**	**-.0007**	**.0115**	**.0123**	**-.0001**	**.1418**
Stddev	.0009	.0033	.0018	.0003	.0019	.0009	.0002	.0330	.0351
%RSD	227.0	168.3	57.17	8.854	268.4	7.522	1.658	24900.	24.78
#1	.0002	.0043	-.0019	.0033	.0006	.0109	.0124	.0232	.1666
#2	-.0010	-.0004	-.0044	.0029	-.0020	.0121	.0121	-.0234	.1169

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0330**	**.0677**	**-.0015**	**6.179**	**.0014**	**.0172**	**-.0058**	**.0656**
Stddev	.0003	.0002	.0008	.0028	.023	.0014	.0096	.0025	.0039
%RSD	44.13	.6842	1.152	188.7	.3749	99.96	55.45	43.36	5.996
#1	-.0005	.0329	.0683	.0005	6.196	.0004	.0240	-.0076	.0684
#2	-.0010	.0332	.0672	-.0034	6.163	.0023	.0105	-.0040	.0628

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0105**	**.0005**	**.0009**	**.1292**	**.2764**	**.0007**	**.0047**	**.0017**	**-.0030**
Stddev	.0248	.0000	.0021	.0115	.0245	.0063	.0000	.0001	.0054
%RSD	237.0	5.134	248.5	8.876	8.876	940.6	.0578	8.260	176.8
#1	.0071	.0005	-.0006	.1373	.2937	.0052	.0047	.0018	-.0068
#2	-.0280	.0005	.0024	.1211	.2590	-.0038	.0047	.0016	.0008

Sample Name: L34674-14 Acquired: 1/18/2017 12:21:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0003	.7578	.7643
Stddev	.0025	.0142	.0086
%RSD	980.9	1.875	1.122
#1	-.0015	.7678	.7704
#2	.0020	.7477	.7583

Int. Std.	Y_3710
Units	Cts/S
Avg	18507.
Stddev	27.
%RSD	.14595
#1	18488.
#2	18526.

Sample Name: CalStd-2 Acquired: 1/18/2017 10:52:16 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0400**	**.2274**	**.0073**	**.0490**	**5.931**	**2.801**	**.0102**	**.0775**	**.0999**
Stddev	.0003	.0008	.0001	.0002	.001	.001	.0001	.0003	.0006
%RSD	.7291	.3671	.8838	.4048	.0157	.0391	1.246	.3542	.5793
#1	.0402	.2280	.0072	.0488	5.932	2.802	.0101	.0777	.0995
#2	.0398	.2268	.0073	.0491	5.931	2.801	.0102	.0773	.1003

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0880**	**.0307**	**.1072**	**.1434**	**.0846**	**.0691**	**.1790**	**.0060**	**.2185**
Stddev	.0008	.0002	.0009	.0003	.0000	.0002	.0006	.0002	.0011
%RSD	.9139	.5546	.8049	.2324	.0191	.3279	.3431	3.302	.5212
#1	.0874	.0306	.1066	.1436	.0846	.0693	.1794	.0062	.2193
#2	.0886	.0309	.1078	.1431	.0847	.0690	.1785	.0059	.2177

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.300**	**.0353**	**.4275**	**.0233**	**.1966**	**.0062**	**.0152**	**.0061**	**.0042**
Stddev	.003	.0002	.0010	.0000	.0004	.0001	.0001	.0000	.0001
%RSD	.2290	.6743	.2279	.1962	.1895	1.441	.7876	.2084	1.255
#1	1.302	.0354	.4282	.0233	.1969	.0062	.0151	.0060	.0042
#2	1.298	.0351	.4268	.0233	.1963	.0063	.0153	.0061	.0043

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.364**	**.0072**	**.0633**	**.0633**	**.0118**	**4.215**	**.1512**	**.0163**	**.0349**
Stddev	.002	.0001	.0003	.0003	.0001	.001	.0002	.0000	.0002
%RSD	.1213	1.136	.5380	.5380	1.041	.0292	.1197	.1884	.6902
#1	1.365	.0071	.0635	.0635	.0117	4.214	.1514	.0163	.0351
#2	1.363	.0072	.0630	.0630	.0119	4.216	.1511	.0164	.0347

Sample Name: CalStd-2 Acquired: 1/18/2017 10:52:16 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0351	.0532
Stddev	.0003	.0004
%RSD	.8821	.8151
#1	.0349	.0529
#2	.0353	.0535

Int. Std.	Y_3710
Units	Cts/S
Avg	16649.
Stddev	120.
%RSD	.72042
#1	16734.
#2	16564.

Sample Name: CalStd-3 Acquired: 1/18/2017 10:55:18 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.607	2.139	.3526	9.583	.0212	.0607
Stddev	.001	.003	.0001	.010	.0001	.0005
%RSD	.0900	.1168	.0338	.1012	.5013	.8382
#1	1.606	2.137	.3527	9.576	.0211	.0604
#2	1.608	2.141	.3525	9.590	.0213	.0611

Int. Std.	Y_3710
Units	Cts/S
Avg	16337.
Stddev	175.
%RSD	1.0705
#1	16461.
#2	16213.

Sample Name: ICV Acquired: 1/18/2017 10:58:28 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9658	2.009	3.868	1.970	1.934	1.976	1.936	99.17	1.915
Stddev	.0043	.004	.058	.019	.011	.007	.013	.12	.016
%RSD	.4423	.1785	1.508	.9848	.5452	.3565	.6536	.1175	.8152
#1	.9627	2.006	3.826	1.956	1.927	1.971	1.945	99.08	1.904
#2	.9688	2.011	3.909	1.984	1.941	1.981	1.927	99.25	1.926
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.925	F 1.868	1.918	1.936	1.959	1.932	1.945	1.922	19.78
Stddev	.019	.016	.029	.002	.004	.007	.005	.012	.11
%RSD	1.010	.8577	1.525	.0849	.2115	.3624	.2481	.5973	.5541
#1	1.911	1.857	1.897	1.937	1.961	1.927	1.948	1.930	19.70
#2	1.939	1.879	1.939	1.935	1.956	1.937	1.941	1.914	19.86
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value		2.000							
Range		-5.550%							

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.950	99.77	1.918	1.990	100.0	1.988	5.152	F 3.777	49.65
Stddev	.009	.35	.003	.010	.3	.012	.042	.053	.22
%RSD	.4593	.3515	.1399	.5194	.3162	.5787	.8190	1.403	.4380
#1	1.944	99.52	1.916	1.982	99.82	1.980	5.122	3.740	49.50
#2	1.956	100.0	1.920	1.997	100.3	1.996	5.182	3.815	49.80
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
Value								4.000	
Range								-5.550%	

Sample Name: ICV Acquired: 1/18/2017 10:58:28 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.027**	**1.944**	**3.901**	F **18.78**	F **40.19**	**1.969**	**1.944**	**1.927**	**3.817**
Stddev	.011	.007	.020	.06	.12	.015	.009	.008	.077
%RSD	.2604	.3588	.5130	.3072	.3072	.7563	.4463	.4183	2.013
#1	4.019	1.939	3.887	18.74	40.10	1.959	1.938	1.921	3.763
#2	4.034	1.949	3.915	18.82	40.27	1.980	1.950	1.932	3.872
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				20.00	20.00				
Range				-5.550%	5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**1.978**	**1.892**	**1.949**
Stddev	.006	.011	.016
%RSD	.3101	.6010	.8422
#1	1.974	1.884	1.938
#2	1.982	1.900	1.961
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**16210.**
Stddev	236.
%RSD	1.4583
#1	16378.
#2	16043.

Sample Name: ICB Acquired: 1/18/2017 11:01:29 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0023**	**.0030**	**-.0095**	**-.0006**	**.0031**	**.0060**	**.0230**	**.0278**	**-.0004**
Stddev	.0002	.0041	.0083	.0024	.0004	.0002	.0018	.0204	.0001
%RSD	10.97	134.2	87.03	440.0	12.10	3.153	7.906	73.12	33.70
#1	-.0021	.0059	-.0037	-.0023	.0033	.0062	.0218	.0422	-.0003
#2	-.0024	.0002	-.0154	.0012	.0028	.0059	.0243	.0134	-.0005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0006**	**.0022**	**-.0044**	**.0046**	**.0045**	**.0005**	**.0039**	**.0241**	**-.0045**
Stddev	.0005	.0019	.0001	.0026	.0002	.0034	.0013	.0043	.0128
%RSD	88.25	86.05	1.183	55.50	4.908	669.1	34.25	17.85	282.0
#1	.0002	.0009	-.0044	.0064	.0047	.0029	.0030	.0210	-.0135
#2	.0009	.0035	-.0043	.0028	.0044	-.0019	.0049	.0271	.0045
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0003**	**.1065**	**-.0006**	**.0007**	**.0923**	**.0048**	**-.0247**	**-.0090**	**.1149**
Stddev	.0002	.0269	.0001	.0003	.0097	.0022	.0195	.0054	.0042
%RSD	54.65	25.24	23.29	47.42	10.56	44.57	78.95	60.63	3.688
#1	-.0004	.1255	-.0007	.0009	.0992	.0064	-.0109	-.0128	.1179
#2	-.0002	.0875	-.0005	.0005	.0854	.0033	-.0384	-.0051	.1119
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/18/2017 11:01:29 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0081**	**.0025**	**.0189**	**.0157**	**.0337**	**-.0051**	**.0037**	**.0032**	**-.0126**
Stddev	.0023	.0002	.0099	.0061	.0130	.0023	.0002	.0004	.0146
%RSD	29.08	9.971	52.63	38.51	38.51	45.27	6.092	11.26	115.4
#1	.0097	.0027	.0259	.0200	.0429	-.0035	.0039	.0034	-.0229
#2	.0064	.0023	.0119	.0115	.0245	-.0068	.0036	.0029	-.0023
Check ?	Chk Pass	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	**-.0003**	**.0007**	**-.0002**
Stddev	.0007	.0007	.0007
%RSD	235.9	106.0	307.6
#1	-.0008	.0012	.0003
#2	.0002	.0002	-.0007
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**16462.**
Stddev	264.
%RSD	1.6049
#1	16649.
#2	16275.

Sample Name: PQV Acquired: 1/18/2017 11:04:42 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0235	.1635	.1995	.0526	.0171	.0559	.2189	.5292	.0133
Stddev	.0004	.0065	.0083	.0005	.0000	.0004	.0073	.0060	.0008
%RSD	1.871	3.970	4.140	1.025	.2199	.6761	3.312	1.137	6.314
#1	.0232	.1681	.2053	.0522	.0171	.0562	.2241	.5335	.0128
#2	.0239	.1590	.1936	.0530	.0171	.0556	.2138	.5250	.0139
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0141	.0510	.0503	.0557	.0534	.0502	.0533	.5539	1.017
Stddev	.0000	.0005	.0023	.0008	.0000	.0037	.0003	.0087	.012
%RSD	.1763	.9421	4.600	1.409	.0386	7.399	.6276	1.565	1.185
#1	.0141	.0506	.0519	.0562	.0533	.0528	.0536	.5600	1.025
#2	.0141	.0513	.0487	.0551	.0534	.0476	.0531	.5478	1.008
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0413	1.041	.0244	.1037	1.076	.0455	.5316	.1549	1.349
Stddev	.0011	.004	.0001	.0037	.009	.0017	.0049	.0042	.014
%RSD	2.662	.4220	.4003	3.606	.8236	3.769	.9267	2.692	1.063
#1	.0405	1.044	.0245	.1011	1.082	.0467	.5281	.1519	1.338
#2	.0420	1.038	.0244	.1064	1.070	.0442	.5350	.1578	1.359
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: PQV Acquired: 1/18/2017 11:04:42 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1641	.5145	.2631	.5353	F 1.146	.2127	.0282	.0270	.5268
Stddev	.0184	.0006	.0112	.0009	.002	.0102	.0002	.0005	.0075
%RSD	11.19	.1129	4.256	.1701	.1701	4.801	.6432	1.768	1.428
#1	.1511	.5141	.2551	.5347	1.144	.2055	.0283	.0266	.5321
#2	.1771	.5150	.2710	.5360	1.147	.2199	.0281	.0273	.5215
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0236	.0568	.0538
Stddev	.0007	.0012	.0007
%RSD	2.990	2.086	1.368
#1	.0231	.0576	.0543
#2	.0241	.0559	.0533
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	16516.
Stddev	112.
%RSD	.67643
#1	16595.
#2	16437.

Sample Name: ICSAB Acquired: 1/18/2017 11:07:53 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4844	250.4	5.003	.4864	.2449	.2432	.5263	241.3	.4632
Stddev	.0016	.7	.033	.0002	.0001	.0003	.0163	.6	.0000
%RSD	.3391	.2682	.6558	.0491	.0255	.1104	3.090	.2645	.0082
#1	.4832	250.9	5.026	.4866	.2448	.2434	.5148	241.7	.4632
#2	.4855	250.0	4.980	.4862	.2449	.2430	.5378	240.8	.4632
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4661	.2339	.2411	.2386	.2396	95.18	95.16	.4695	25.34
Stddev	.0007	.0000	.0017	.0012	.0061	.14	.11	.0001	.02
%RSD	.1446	.0151	.7179	.5009	2.557	.1473	.1169	.0225	.0918
#1	.4656	.2338	.2423	.2395	.2353	95.28	95.24	.4694	25.36
#2	.4665	.2339	.2399	.2378	.2439	95.08	95.08	.4695	25.32
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5116	251.4	.2367	.4800	25.80	.4743	4.987	.4359	2.567
Stddev	.0023	1.5	.0001	.0032	.02	.0017	.018	.0120	.040
%RSD	.4453	.5869	.0220	.6602	.0945	.3527	.3688	2.759	1.544
#1	.5132	252.5	.2367	.4778	25.81	.4731	4.974	.4444	2.595
#2	.5100	250.4	.2366	.4823	25.78	.4755	5.000	.4274	2.539
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/18/2017 11:07:53 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5065	.4987	4.947	2.478	F 5.303	2.393	.4919	.4904	2.335
Stddev	.0392	.0004	.004	.004	.009	.002	.0005	.0015	.006
%RSD	7.747	.0827	.0715	.1761	.1761	.0669	.1102	.3002	.2545
#1	.4787	.4984	4.945	2.475	5.297	2.395	.4916	.4894	2.339
#2	.5342	.4990	4.950	2.481	5.310	2.392	.4923	.4915	2.330
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2340	.4661	.4894
Stddev	.0034	.0029	.0008
%RSD	1.472	.6301	.1619
#1	.2364	.4640	.4899
#2	.2315	.4682	.4888
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	16413.
Stddev	72.
%RSD	.44079
#1	16464.
#2	16362.

Sample Name: WASH Acquired: 1/18/2017 11:11:01 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0045**	**.0810**	**-.0239**	**-.0037**	**.0013**	**.0042**	**.0100**	**.0042**	**-.0018**
Stddev	.0030	.0074	.0150	.0030	.0001	.0001	.0008	.0156	.0002
%RSD	66.20	9.113	62.71	81.85	8.795	3.397	8.109	368.8	9.788
#1	-.0024	.0862	-.0133	-.0015	.0014	.0043	.0105	.0152	-.0017
#2	-.0066	.0757	-.0344	-.0058	.0013	.0041	.0094	-.0068	-.0020
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**-.0011**	**-.0042**	**.0062**	**-.0006**	**.0438**	**.0515**	**.0038**	**-.0410**
Stddev	.0006	.0018	.0002	.0006	.0021	.0007	.0042	.0160	.0273
%RSD	115.7	163.6	5.441	9.973	348.7	1.672	8.090	418.8	66.58
#1	-.0009	-.0024	-.0040	.0058	-.0021	.0443	.0545	.0151	-.0603
#2	-.0001	.0002	-.0044	.0066	.0009	.0433	.0486	-.0075	-.0217
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0018**	**.0794**	**.0044**	**-.0028**	**-.0027**	**.0022**	**-.0138**	**-.0083**	**.0213**
Stddev	.0001	.0037	.0002	.0007	.0062	.0024	.0143	.0050	.0213
%RSD	5.768	4.626	4.645	26.30	226.9	106.7	103.8	60.53	100.3
#1	-.0019	.0768	.0045	-.0023	.0016	.0005	-.0239	-.0119	.0062
#2	-.0017	.0819	.0042	-.0034	-.0071	.0039	-.0037	-.0048	.0364
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/18/2017 11:11:01 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017	.0007	.0099	.0021	.0045	-.0006	.0021	.0010	-.0225
Stddev	.0053	.0002	.0208	.0010	.0021	.0085	.0001	.0014	.0181
%RSD	322.0	25.37	208.9	45.42	45.42	1483.	5.863	137.0	80.12
#1	.0054	.0006	-.0047	.0028	.0060	.0055	.0021	.0020	-.0098
#2	-.0021	.0008	.0246	.0014	.0031	-.0066	.0020	.0000	-.0353
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0027	-.0035	-.0016
Stddev	.0017	.0000	.0006
%RSD	63.07	.4887	37.48
#1	-.0015	-.0035	-.0012
#2	-.0039	-.0035	-.0021
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	16567.
Stddev	63.
%RSD	.38223
#1	16612.
#2	16522.

Sample Name: WG416214PBS Acquired: 1/18/2017 11:14:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0040**	**.0171**	**-.0100**	**-.0021**	**.0011**	**.0045**	**-.0009**	**.3063**	**-.0023**
Stddev	.0039	.0046	.0204	.0033	.0001	.0001	.0146	.0147	.0001
%RSD	98.03	26.84	205.5	157.4	6.511	1.162	1561.	4.799	5.247
#1	.0067	.0204	.0045	-.0045	.0011	.0045	-.0113	.3167	-.0022
#2	.0012	.0139	-.0244	.0002	.0012	.0044	.0094	.2959	-.0024

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0012**	**-.0010**	**-.0040**	**.0050**	**.0012**	**.0024**	**.0088**	**.0047**	**-.0482**
Stddev	.0008	.0001	.0022	.0001	.0018	.0166	.0025	.0224	.0138
%RSD	65.63	7.840	54.72	1.281	149.0	682.6	28.03	479.2	28.64
#1	-.0007	-.0010	-.0024	.0051	-.0001	.0142	.0106	.0205	-.0580
#2	-.0018	-.0011	-.0055	.0050	.0025	-.0093	.0071	-.0112	-.0385

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0014**	**-.0105**	**-.0026**	**-.0013**	**.0451**	**.0007**	**-.0215**	**-.0079**	**.0630**
Stddev	.0001	.0145	.0002	.0006	.0026	.0001	.0177	.0016	.0038
%RSD	5.293	138.3	6.742	44.67	5.855	17.67	82.46	20.42	6.021
#1	-.0015	-.0002	-.0024	-.0009	.0470	.0008	-.0090	-.0090	.0657
#2	-.0014	-.0207	-.0027	-.0018	.0433	.0006	-.0340	-.0067	.0603

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0174**	**.0008**	**.0085**	**.0065**	**.0139**	**.0006**	**.0022**	**.0010**	**.0036**
Stddev	.0150	.0000	.0052	.0091	.0195	.0053	.0001	.0007	.0006
%RSD	86.32	4.882	61.03	140.1	140.1	861.6	5.007	69.87	15.38
#1	-.0281	.0008	.0122	.0001	.0001	-.0032	.0023	.0015	.0032
#2	-.0068	.0008	.0048	.0130	.0278	.0044	.0021	.0005	.0040

Sample Name: WG416214PBS Acquired: 1/18/2017 11:14:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0029	.0210	.0229
Stddev	.0000	.0019	.0021
%RSD	1.097	8.884	9.095
#1	-.0029	.0197	.0214
#2	-.0029	.0223	.0244

Int. Std.	Y_3710
Units	Cts/S
Avg	17445.
Stddev	150.
%RSD	.85708
#1	17551.
#2	17340.

Sample Name: L34445-01 Acquired: 1/18/2017 11:17:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0105	.0198	-.0081	-.0025	.0264	.0044	.0028	.4253	-.0012
Stddev	.0019	.0081	.0050	.0040	.0001	.0000	.0243	.0096	.0002
%RSD	18.41	40.83	61.36	160.2	.5494	.2343	857.8	2.256	15.66
#1	.0118	.0255	-.0046	-.0053	.0265	.0044	.0200	.4185	-.0014
#2	.0091	.0141	-.0116	.0003	.0263	.0044	-.0144	.4320	-.0011

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0003	-.0015	-.0047	.0016	-.0007	.0065	.0075	-.0266	.1087
Stddev	.0017	.0006	.0005	.0002	.0036	.0021	.0011	.0010	.0013
%RSD	491.0	36.19	11.35	11.74	494.0	32.02	14.58	3.679	1.186
#1	-.0015	-.0019	-.0051	.0014	-.0033	.0079	.0083	-.0259	.1096
#2	.0008	-.0011	-.0043	.0017	.0018	.0050	.0067	-.0273	.1078

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0011	.0618	-.0013	-.0023	8.534	.0029	.0161	-.0038	.0651
Stddev	.0002	.0096	.0000	.0006	.056	.0001	.0174	.0107	.0016
%RSD	15.04	15.51	.3767	25.73	.6561	3.744	108.0	277.8	2.434
#1	-.0012	.0550	-.0013	-.0019	8.573	.0029	.0284	.0037	.0640
#2	-.0010	.0686	-.0013	-.0028	8.494	.0028	.0038	-.0114	.0663

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000	.0005	.0025	.0652	.1394	-.0016	.0044	.0015	.0066
Stddev	.0044	.0001	.0070	.0111	.0238	.0064	.0001	.0006	.0049
%RSD	33510.	21.27	283.8	17.09	17.09	395.3	1.659	42.22	74.97
#1	.0031	.0004	.0075	.0730	.1563	-.0062	.0045	.0010	.0100
#2	-.0031	.0006	-.0025	.0573	.1226	.0029	.0044	.0019	.0031

Sample Name: L34445-01 Acquired: 1/18/2017 11:17:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0007	.0101	.0082
Stddev	.0006	.0015	.0012
%RSD	82.55	14.30	14.79
#1	-.0003	.0091	.0074
#2	-.0011	.0112	.0091

Int. Std.	Y_3710
Units	Cts/S
Avg	17917.
Stddev	118.
%RSD	.65736
#1	17834.
#2	18001.

Sample Name: L34445-01DUP Acquired: 1/18/2017 11:20:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0062**	**.0100**	**-.0085**	**-.0034**	**.0277**	**.0043**	**-.0015**	**.3682**	**-.0011**
Stddev	.0020	.0009	.0004	.0009	.0001	.0001	.0045	.0104	.0004
%RSD	32.42	9.137	4.541	27.98	.3468	2.727	295.2	2.836	36.83
#1	-.0048	.0107	-.0087	-.0040	.0277	.0043	-.0047	.3608	-.0014
#2	-.0077	.0094	-.0082	-.0027	.0278	.0044	.0017	.3755	-.0008

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000**	**.0004**	**-.0025**	**.0030**	**.0003**	**.0036**	**.0055**	**-.0245**	**.1187**
Stddev	.0007	.0024	.0000	.0005	.0022	.0050	.0019	.0232	.0066
%RSD	1635.	661.0	1.664	16.24	784.2	139.5	35.27	94.53	5.549
#1	.0005	-.0014	-.0025	.0027	.0018	.0071	.0069	-.0081	.1140
#2	-.0004	.0021	-.0025	.0034	-.0013	.0000	.0041	-.0409	.1233

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.0702**	**-.0009**	**-.0024**	**9.225**	**.0019**	**-.0027**	**-.0149**	**.0657**
Stddev	.0003	.0030	.0002	.0001	.009	.0001	.0082	.0037	.0150
%RSD	37.36	4.224	24.64	2.954	.0992	3.681	299.5	24.94	22.77
#1	-.0007	.0681	-.0007	-.0023	9.218	.0018	.0031	-.0123	.0763
#2	-.0012	.0723	-.0010	-.0024	9.231	.0019	-.0086	-.0175	.0551

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0015**	**.0002**	**.0184**	**.0633**	**.1355**	**-.0030**	**.0046**	**.0011**	**-.0044**
Stddev	.0007	.0004	.0011	.0027	.0057	.0056	.0000	.0003	.0016
%RSD	46.57	152.0	5.944	4.237	4.237	188.5	.4085	23.00	35.23
#1	.0010	.0005	.0192	.0614	.1314	-.0069	.0046	.0010	-.0055
#2	.0020	-.0000	.0177	.0652	.1395	.0010	.0046	.0013	-.0033

Sample Name: L34445-01DUP Acquired: 1/18/2017 11:20:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0011	.0035	.0041
Stddev	.0011	.0015	.0018
%RSD	100.8	41.63	43.42
#1	-.0003	.0025	.0029
#2	-.0018	.0046	.0054

Int. Std.	Y_3710
Units	Cts/S
Avg	18045.
Stddev	147.
%RSD	.81327
#1	18149.
#2	17941.

Sample Name: L34445-02 Acquired: 1/18/2017 11:23:49 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0020**	**.0188**	**-.0070**	**-.0042**	**.0330**	**.0045**	**.0218**	**14.75**	**-.0011**
Stddev	.0016	.0077	.0124	.0003	.0001	.0000	.0051	.12	.0000
%RSD	79.57	40.81	176.7	6.072	.2295	.0807	23.43	.8096	2.888
#1	-.0031	.0242	.0018	-.0044	.0331	.0045	.0254	14.83	-.0011
#2	-.0009	.0134	-.0158	-.0040	.0330	.0045	.0182	14.66	-.0011

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0006**	**-.0018**	**-.0033**	**.0004**	**.0031**	**.0012**	**.0052**	**-.0059**	**.1229**
Stddev	.0003	.0007	.0007	.0007	.0020	.0013	.0029	.0032	.0087
%RSD	59.50	38.34	20.14	185.7	64.32	105.4	56.00	54.07	7.091
#1	-.0008	-.0013	-.0037	-.0001	.0017	.0003	.0073	-.0036	.1168
#2	-.0003	-.0023	-.0028	.0008	.0046	.0021	.0031	-.0082	.1291

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0838**	**.0030**	**-.0040**	**10.08**	**.0045**	**-.0105**	**-.0107**	**.1025**
Stddev	.0005	.0112	.0002	.0003	.01	.0020	.0025	.0061	.0186
%RSD	69.76	13.33	6.852	7.846	.0907	43.68	23.64	57.10	18.12
#1	-.0010	.0917	.0029	-.0042	10.07	.0031	-.0123	-.0150	.1156
#2	-.0003	.0759	.0032	-.0038	10.09	.0060	-.0088	-.0063	.0893

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0159**	**.0005**	**.0052**	**.0597**	**.1277**	**-.0056**	**.0101**	**.0006**	**-.0132**
Stddev	.0025	.0003	.0044	.0006	.0013	.0052	.0001	.0001	.0070
%RSD	15.38	58.78	84.38	.9843	.9843	92.84	.6596	17.10	53.22
#1	-.0142	.0008	.0021	.0592	.1268	-.0093	.0102	.0007	-.0182
#2	-.0177	.0003	.0083	.0601	.1286	-.0019	.0101	.0005	-.0082

Sample Name: L34445-02 Acquired: 1/18/2017 11:23:49 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0008	.0251	.0243
Stddev	.0013	.0010	.0009
%RSD	161.2	4.130	3.593
#1	.0001	.0258	.0237
#2	-.0018	.0244	.0249

Int. Std.	Y_3710
Units	Cts/S
Avg	18379.
Stddev	305.
%RSD	1.6575
#1	18594.
#2	18163.

Sample Name: L34445-03 Acquired: 1/18/2017 11:27:01 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0100	.0096	-.0135	-.0036	.0273	.0044	.0175	.4068	-.0016
Stddev	.0019	.0039	.0035	.0026	.0001	.0000	.0091	.0033	.0001
%RSD	18.98	40.52	25.96	72.41	.5187	.4719	51.80	.8189	7.165
#1	.0086	.0123	-.0110	-.0018	.0274	.0044	.0111	.4045	-.0016
#2	.0113	.0068	-.0160	-.0054	.0272	.0044	.0239	.4092	-.0015

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0005	-.0003	-.0045	.0016	-.0004	.0017	.0056	-.0032	.0723
Stddev	.0005	.0002	.0001	.0007	.0022	.0021	.0022	.0150	.0107
%RSD	106.3	70.43	2.628	45.17	613.6	123.8	39.57	464.1	14.82
#1	-.0008	-.0005	-.0045	.0021	.0012	.0032	.0040	.0074	.0648
#2	-.0001	-.0002	-.0044	.0011	-.0019	.0002	.0072	-.0139	.0799

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0011	.0507	.0009	-.0021	7.053	-.0014	-.0035	-.0041	.0567
Stddev	.0001	.0045	.0000	.0002	.033	.0027	.0028	.0115	.0165
%RSD	5.283	8.904	5.080	8.062	.4651	197.7	79.87	279.2	29.17
#1	-.0011	.0539	.0009	-.0020	7.076	.0005	-.0055	.0040	.0684
#2	-.0010	.0475	.0009	-.0022	7.030	-.0033	-.0015	-.0123	.0450

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0098	.0006	.0234	.0665	.1423	-.0030	.0046	.0007	.0052
Stddev	.0062	.0000	.0076	.0025	.0054	.0027	.0001	.0003	.0112
%RSD	63.01	4.498	32.66	3.807	3.807	89.98	2.623	35.26	216.3
#1	-.0142	.0006	.0287	.0647	.1384	-.0049	.0047	.0005	-.0027
#2	-.0055	.0006	.0180	.0683	.1461	-.0011	.0045	.0009	.0131

Sample Name: L34445-03 Acquired: 1/18/2017 11:27:01 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0006	.0020	.0020
Stddev	.0014	.0004	.0009
%RSD	244.7	18.95	47.82
#1	-.0016	.0018	.0013
#2	.0004	.0023	.0026

Int. Std.	Y_3710
Units	Cts/S
Avg	18460.
Stddev	37.
%RSD	.20260
#1	18487.
#2	18434.

Sample Name: L34445-04 Acquired: 1/18/2017 11:30:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0034**	**.0109**	**-.0145**	**-.0014**	**.0227**	**.0043**	**.0111**	**.4126**	**-.0018**
Stddev	.0033	.0084	.0126	.0004	.0000	.0001	.0022	.0014	.0002
%RSD	97.87	77.56	86.96	26.99	.0929	1.302	19.61	.3464	12.17
#1	-.0010	.0169	-.0234	-.0011	.0227	.0043	.0095	.4116	-.0020
#2	-.0057	.0049	-.0056	-.0017	.0227	.0044	.0126	.4136	-.0017

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.0012**	**-.0034**	**.0034**	**-.0034**	**.0044**	**.0075**	**-.0311**	**.1167**
Stddev	.0001	.0004	.0008	.0023	.0005	.0134	.0047	.0410	.0014
%RSD	16.00	36.07	21.89	66.96	14.24	307.8	63.69	131.8	1.196
#1	-.0008	.0009	-.0040	.0051	-.0031	-.0051	.0041	-.0021	.1157
#2	-.0010	.0015	-.0029	.0018	-.0038	.0138	.0108	-.0602	.1177

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0016**	**.0696**	**-.0002**	**-.0018**	**7.983**	**.0025**	**.0045**	**-.0140**	**.0686**
Stddev	.0003	.0019	.0002	.0013	.028	.0021	.0266	.0092	.0343
%RSD	16.48	2.754	100.2	69.88	.3543	84.38	587.1	66.05	50.03
#1	-.0014	.0682	-.0001	-.0027	8.003	.0010	.0233	-.0074	.0929
#2	-.0018	.0709	-.0004	-.0009	7.963	.0041	-.0143	-.0205	.0444

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0173**	**.0006**	**.0060**	**.0576**	**.1232**	**-.0037**	**.0048**	**.0009**	**.0073**
Stddev	.0133	.0003	.0040	.0001	.0003	.0001	.0000	.0006	.0097
%RSD	77.15	45.44	66.98	.2056	.2056	1.380	.8108	62.44	133.1
#1	-.0267	.0004	.0032	.0575	.1230	-.0036	.0047	.0013	.0142
#2	-.0079	.0007	.0088	.0577	.1234	-.0037	.0048	.0005	.0004

Sample Name: L34445-04 Acquired: 1/18/2017 11:30:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0003	-.0005	-.0006
Stddev	.0010	.0010	.0008
%RSD	339.2	224.0	135.1
#1	.0004	-.0012	-.0011
#2	-.0010	.0003	-.0000

Int. Std.	Y_3710
Units	Cts/S
Avg	18096.
Stddev	19.
%RSD	.10466
#1	18110.
#2	18083.

Sample Name: L34674-01 Acquired: 1/18/2017 11:33:26 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0024**	**.0116**	**-.0121**	**-.0001**	**.0348**	**.0046**	**.0029**	**.8860**	**-.0018**
Stddev	.0007	.0059	.0017	.0015	.0007	.0000	.0017	.0018	.0001
%RSD	31.37	50.77	14.09	1296.	1.874	.8298	58.87	.2073	4.782
#1	-.0019	.0158	-.0133	-.0012	.0343	.0046	.0017	.8873	-.0017
#2	-.0029	.0075	-.0109	.0010	.0352	.0045	.0041	.8847	-.0018

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**-.0027**	**-.0035**	**-.0006**	**-.0006**	**.0058**	**.0078**	**-.0048**	**.1559**
Stddev	.0001	.0005	.0001	.0015	.0014	.0005	.0005	.0048	.0261
%RSD	10.35	20.49	1.810	237.9	217.2	8.882	6.288	100.3	16.76
#1	-.0011	-.0023	-.0034	-.0017	-.0016	.0054	.0075	-.0082	.1374
#2	-.0012	-.0030	-.0035	.0004	.0003	.0061	.0082	-.0014	.1743

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**.0668**	**.0004**	**-.0017**	**9.222**	**.0013**	**.0134**	**-.0048**	**.0684**
Stddev	.0003	.0005	.0002	.0011	.082	.0011	.0138	.0036	.0095
%RSD	27.97	.7115	41.87	63.92	.8892	87.88	102.8	74.14	13.87
#1	-.0009	.0671	.0005	-.0024	9.164	.0021	.0232	-.0023	.0617
#2	-.0013	.0665	.0003	-.0009	9.280	.0005	.0037	-.0073	.0751

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0016**	**.0004**	**.0087**	**.0586**	**.1255**	**-.0028**	**.0066**	**.0013**	**-.0051**
Stddev	.0099	.0000	.0117	.0035	.0075	.0068	.0003	.0003	.0123
%RSD	609.4	11.68	133.5	5.939	5.939	247.1	4.043	19.83	240.5
#1	.0054	.0004	.0170	.0611	.1307	.0021	.0064	.0015	.0036
#2	-.0086	.0004	.0005	.0562	.1202	-.0076	.0068	.0011	-.0138

Sample Name: L34674-01 Acquired: 1/18/2017 11:33:26 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0014	.0069	.0075
Stddev	.0011	.0019	.0015
%RSD	77.17	27.50	20.04
#1	-.0021	.0056	.0064
#2	-.0006	.0083	.0085

Int. Std.	Y_3710
Units	Cts/S
Avg	17937.
Stddev	657.
%RSD	3.6617
#1	18402.
#2	17473.

Sample Name: L34674-01AS Acquired: 1/18/2017 11:36:38 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4567	.9926	.9796	.4874	.5264	.4840	.9707	67.13	.4673
Stddev	.0049	.0123	.0032	.0010	.0046	.0048	.0131	.96	.0045
%RSD	1.064	1.237	.3283	.2027	.8781	1.002	1.348	1.429	.9583
#1	.4601	1.001	.9819	.4881	.5296	.4874	.9800	67.81	.4641
#2	.4532	.9840	.9774	.4867	.5231	.4806	.9615	66.45	.4705

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4704	.4703	.4862	.4890	.4890	.9898	.9959	1.005	96.98
Stddev	.0046	.0045	.0069	.0079	.0041	.0047	.0058	.005	.93
%RSD	.9747	.9624	1.427	1.614	.8359	.4732	.5786	.5053	.9639
#1	.4672	.4671	.4813	.4946	.4919	.9931	1.0000	1.009	97.64
#2	.4736	.4735	.4911	.4834	.4861	.9864	.9918	1.001	96.31

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9795	44.47	.5081	.4851	106.6	.4913	1.046	.9524	4.922
Stddev	.0084	.57	.0049	.0069	.9	.0076	.008	.0048	.044
%RSD	.8604	1.288	.9620	1.424	.8890	1.545	.7596	.5023	.8883
#1	.9854	44.87	.5116	.4802	107.3	.4859	1.041	.9490	4.891
#2	.9735	44.06	.5047	.4900	106.0	.4967	1.052	.9558	4.953

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.955	.9652	1.017	9.797	20.97	.9402	.4932	.9786	1.916
Stddev	.008	.0081	.027	.124	.27	.0087	.0040	.0095	.026
%RSD	.4102	.8443	2.652	1.269	1.269	.9221	.8026	.9670	1.384
#1	1.949	.9709	1.036	9.885	21.15	.9341	.4960	.9853	1.897
#2	1.961	.9594	.9977	9.709	20.78	.9463	.4904	.9719	1.934

Sample Name: L34674-01AS Acquired: 1/18/2017 11:36:38 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4833	.4758	.4835
Stddev	.0021	.0038	.0050
%RSD	.4309	.8002	1.041
#1	.4847	.4731	.4800
#2	.4818	.4785	.4871

Int. Std.	Y_3710
Units	Cts/S
Avg	17568.
Stddev	129.
%RSD	.73406
#1	17659.
#2	17477.

Sample Name: L34674-01ASD Acquired: 1/18/2017 11:39:46 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4527	.9924	1.008	.4935	.5288	.4892	1.010	67.04	.4710
Stddev	.0027	.0037	.017	.0009	.0013	.0020	.020	.83	.0010
%RSD	.5917	.3765	1.660	.1924	.2466	.4125	2.001	1.244	.2054
#1	.4546	.9897	.9964	.4941	.5279	.4906	.9955	67.62	.4717
#2	.4508	.9950	1.020	.4928	.5298	.4877	1.024	66.45	.4703

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4762	.4792	.4922	.4917	.4872	.9970	1.003	.9588	96.48
Stddev	.0024	.0008	.0015	.0025	.0021	.0080	.004	.0119	.23
%RSD	.5061	.1603	.3070	.5149	.4248	.8022	.3967	1.244	.2402
#1	.4779	.4787	.4911	.4935	.4886	1.003	1.006	.9672	96.64
#2	.4745	.4797	.4933	.4899	.4857	.9913	1.000	.9504	96.31

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9874	44.44	.5088	.4816	106.7	.4946	1.061	.9596	4.970
Stddev	.0053	.55	.0024	.0041	.0	.0015	.008	.0063	.041
%RSD	.5376	1.243	.4664	.8550	.0284	.3038	.7859	.6604	.8249
#1	.9837	44.83	.5104	.4787	106.7	.4935	1.055	.9551	4.999
#2	.9912	44.05	.5071	.4845	106.7	.4956	1.067	.9641	4.941

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.989	.9710	1.005	9.821	21.02	.9543	.4937	.9936	1.908
Stddev	.030	.0003	.035	.082	.17	.0002	.0008	.0018	.021
%RSD	1.495	.0303	3.453	.8297	.8297	.0192	.1702	.1774	1.120
#1	1.968	.9708	1.030	9.878	21.14	.9545	.4931	.9949	1.923
#2	2.010	.9712	.9808	9.763	20.89	.9542	.4943	.9924	1.893

Sample Name: L34674-01ASD Acquired: 1/18/2017 11:39:46 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4884	.4752	.4852
Stddev	.0011	.0034	.0006
%RSD	.2351	.7071	.1308
#1	.4893	.4776	.4847
#2	.4876	.4728	.4856

Int. Std.	Y_3710
Units	Cts/S
Avg	17709.
Stddev	36.
%RSD	.20089
#1	17683.
#2	17734.

Sample Name: L34674-02 Acquired: 1/18/2017 11:42:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0019**	**.0244**	**-.0071**	**-.0033**	**.0146**	**.0047**	**.0045**	**1.281**	**-.0015**
Stddev	.0024	.0017	.0006	.0017	.0001	.0001	.0088	.018	.0002
%RSD	130.7	7.031	9.170	51.81	.6188	3.043	196.3	1.381	9.933
#1	-.0001	.0256	-.0066	-.0021	.0147	.0048	-.0017	1.294	-.0014
#2	-.0036	.0232	-.0075	-.0045	.0146	.0046	.0107	1.269	-.0016

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0015**	**.0011**	**-.0042**	**.0025**	**.0010**	**.0063**	**.0077**	**.0048**	**.2685**
Stddev	.0005	.0017	.0001	.0003	.0020	.0020	.0019	.0228	.0091
%RSD	34.50	154.9	2.625	11.52	195.4	32.33	24.31	472.2	3.379
#1	-.0012	-.0001	-.0042	.0027	-.0004	.0077	.0063	.0209	.2620
#2	-.0019	.0023	-.0041	.0023	.0025	.0048	.0090	-.0113	.2749

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**.0589**	**.0082**	**-.0024**	**10.36**	**.0135**	**.0138**	**-.0076**	**.0897**
Stddev	.0004	.0056	.0002	.0017	.01	.0005	.0214	.0108	.0018
%RSD	104.0	9.581	2.068	70.66	.1156	3.371	154.6	141.5	2.044
#1	-.0001	.0629	.0081	-.0012	10.37	.0138	.0290	-.0152	.0884
#2	-.0007	.0549	.0084	-.0036	10.35	.0132	-.0013	.0000	.0910

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0043**	**.0007**	**.0073**	**.0724**	**.1549**	**-.0023**	**.0061**	**.0017**	**-.0051**
Stddev	.0057	.0000	.0158	.0036	.0076	.0011	.0000	.0010	.0061
%RSD	131.9	4.060	214.9	4.906	4.906	47.34	.5554	60.88	121.4
#1	.0083	.0008	-.0038	.0699	.1495	-.0030	.0061	.0010	-.0094
#2	.0003	.0007	.0185	.0749	.1603	-.0015	.0061	.0024	-.0007

Sample Name: L34674-02 Acquired: 1/18/2017 11:42:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0010	.0603	.0597
Stddev	.0014	.0003	.0001
%RSD	142.2	.5361	.1192
#1	.0020	.0606	.0596
#2	-.0000	.0601	.0597

Int. Std.	Y_3710
Units	Cts/S
Avg	18686.
Stddev	534.
%RSD	2.8568
#1	19064.
#2	18309.

Sample Name: CCV Acquired: 1/18/2017 11:46:06 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4994	1.048	1.981	1.025	1.018	1.028	.9945	50.57	.9735
Stddev	.0054	.013	.020	.001	.010	.014	.0052	.81	.0080
%RSD	1.073	1.207	1.004	.1366	.9980	1.314	.5221	1.606	.8256
#1	.5032	1.057	1.995	1.026	1.025	1.038	.9981	51.15	.9792
#2	.4956	1.039	1.967	1.024	1.011	1.019	.9908	50.00	.9679
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9837	.9656	.9868	.9933	1.021	.9954	1.009	.9930	10.17
Stddev	.0023	.0082	.0051	.0089	.010	.0292	.010	.0106	.16
%RSD	.2297	.8464	.5118	.8975	.9784	2.935	.9505	1.063	1.562
#1	.9853	.9714	.9904	.9996	1.029	1.016	1.016	.9855	10.29
#2	.9821	.9598	.9832	.9870	1.014	.9747	1.002	1.000	10.06
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.033	50.45	.9961	1.021	51.93	1.031	2.606	1.900	25.58
Stddev	.010	.81	.0158	.001	.56	.002	.028	.008	.06
%RSD	.9963	1.614	1.584	.0873	1.074	.2114	1.065	.4350	.2234
#1	1.040	51.03	1.007	1.022	52.33	1.032	2.626	1.894	25.62
#2	1.026	49.88	.9849	1.020	51.54	1.029	2.587	1.906	25.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/18/2017 11:46:06 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.077	1.018	2.013	9.857	F 21.09	1.001	1.023	1.024	1.969
Stddev	.011	.014	.008	.143	.31	.004	.010	.013	.030
%RSD	.5094	1.407	.4010	1.448	1.448	.4099	.9977	1.311	1.545
#1	2.085	1.028	2.019	9.957	21.31	1.003	1.030	1.033	1.990
#2	2.070	1.008	2.007	9.756	20.88	.9977	1.015	1.014	1.947
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.026	.9609	.9881
Stddev	.017	.0133	.0089
%RSD	1.669	1.389	.9051
#1	1.038	.9704	.9944
#2	1.014	.9515	.9817
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	17782.
Stddev	23.
%RSD	.12865
#1	17799.
#2	17766.

Sample Name: CCB Acquired: 1/18/2017 11:49:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0023**	**.0063**	**-.0145**	**-.0038**	**.0018**	**.0050**	**.0089**	**-.0185**	**-.0017**
Stddev	.0004	.0007	.0046	.0044	.0000	.0000	.0125	.0020	.0007
%RSD	19.33	11.48	31.54	117.7	.5740	.9991	139.9	10.95	40.97
#1	-.0020	.0069	-.0177	-.0069	.0018	.0050	.0177	-.0199	-.0012
#2	-.0026	.0058	-.0113	-.0006	.0018	.0050	.0001	-.0170	-.0023
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**-.0018**	**-.0018**	**.0019**	**-.0008**	**-.0039**	**.0034**	**.0070**	**-.0432**
Stddev	.0004	.0027	.0007	.0013	.0024	.0017	.0001	.0038	.0216
%RSD	83.38	148.7	37.52	69.13	283.1	42.62	1.519	54.39	49.97
#1	-.0009	-.0037	-.0013	.0029	.0008	-.0028	.0034	.0043	-.0280
#2	-.0002	.0001	-.0023	.0010	-.0025	-.0051	.0034	.0097	-.0585
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0008**	**.0287**	**-.0014**	**-.0024**	**.0346**	**.0028**	**.0217**	**-.0078**	**.0482**
Stddev	.0006	.0317	.0003	.0015	.0053	.0001	.0004	.0036	.0132
%RSD	72.98	110.2	24.10	63.24	15.44	2.613	1.963	46.48	27.35
#1	-.0012	.0511	-.0017	-.0035	.0384	.0029	.0220	-.0103	.0575
#2	-.0004	.0063	-.0012	-.0013	.0308	.0028	.0214	-.0052	.0389
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/18/2017 11:49:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0070**	**.0012**	**.0082**	**.0090**	**.0193**	**-.0035**	**.0026**	**.0010**	**-.0102**
Stddev	.0038	.0002	.0070	.0017	.0036	.0030	.0000	.0002	.0007
%RSD	54.83	18.16	84.79	18.84	18.84	86.05	1.887	19.73	6.814
#1	-.0043	.0011	.0132	.0078	.0167	-.0056	.0026	.0011	-.0107
#2	-.0097	.0014	.0033	.0102	.0218	-.0014	.0026	.0008	-.0097
Check ?	Chk Pass	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	**-.0010**	**-.0009**	**-.0014**
Stddev	.0010	.0006	.0003
%RSD	105.5	60.75	24.15
#1	-.0003	-.0005	-.0011
#2	-.0017	-.0013	-.0016
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**18049.**
Stddev	55.
%RSD	.30337
#1	18010.
#2	18087.

Sample Name: L34674-03 Acquired: 1/18/2017 11:52:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000	.0094	-.0108	-.0009	.0252	.0044	-.0014	.4876	-.0010
Stddev	.0019	.0111	.0088	.0014	.0008	.0002	.0080	.0039	.0001
%RSD	6414.	118.7	81.98	146.8	3.262	4.169	583.6	.8084	5.840
#1	.0014	.0015	-.0045	.0000	.0258	.0043	.0043	.4904	-.0010
#2	-.0013	.0173	-.0170	-.0019	.0246	.0046	-.0071	.4848	-.0010

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0006	.0000	-.0025	.0013	.0008	.0003	.0033	.0024	.1842
Stddev	.0005	.0026	.0008	.0004	.0018	.0014	.0001	.0120	.0051
%RSD	96.23	6248.	32.03	29.45	224.4	495.8	3.391	491.6	2.768
#1	-.0002	.0019	-.0030	.0015	-.0005	.0013	.0033	.0109	.1878
#2	-.0010	-.0018	-.0019	.0010	.0021	-.0007	.0034	-.0060	.1806

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0006	.0414	.0403	-.0031	6.716	.0017	-.0155	-.0104	.0398
Stddev	.0002	.0108	.0021	.0027	.269	.0046	.0166	.0011	.0103
%RSD	39.11	26.03	5.306	87.02	3.998	274.0	107.3	10.57	25.83
#1	-.0007	.0338	.0418	-.0051	6.905	.0050	-.0272	-.0112	.0470
#2	-.0004	.0491	.0388	-.0012	6.526	-.0016	-.0037	-.0096	.0325

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0149	.0007	.0064	.1249	.2674	-.0024	.0047	.0011	-.0006
Stddev	.0162	.0003	.0067	.0051	.0109	.0056	.0002	.0003	.0006
%RSD	109.0	46.69	104.8	4.073	4.073	229.0	4.066	30.27	87.20
#1	-.0263	.0009	.0017	.1285	.2751	.0015	.0048	.0009	-.0011
#2	-.0034	.0004	.0111	.1213	.2597	-.0064	.0046	.0014	-.0002

Sample Name: L34674-03 Acquired: 1/18/2017 11:52:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0006	.3187	.3172
Stddev	.0006	.0148	.0104
%RSD	101.4	4.658	3.294
#1	-.0002	.3292	.3246
#2	-.0011	.3082	.3098

Int. Std.	Y_3710
Units	Cts/S
Avg	18550.
Stddev	783.
%RSD	4.2208
#1	17996.
#2	19104.

Sample Name: L34674-04 Acquired: 1/18/2017 11:55:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0039**	**.0192**	**-.0121**	**-.0052**	**.0299**	**.0045**	**.0086**	**.2816**	**-.0010**
Stddev	.0012	.0010	.0200	.0009	.0002	.0000	.0274	.0054	.0001
%RSD	29.95	5.057	164.4	17.14	.7793	.9913	318.9	1.919	8.918
#1	.0031	.0185	-.0263	-.0046	.0301	.0045	.0279	.2855	-.0011
#2	.0047	.0198	.0020	-.0059	.0297	.0046	-.0108	.2778	-.0009

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0006**	**-.0005**	**-.0052**	**.0027**	**.0005**	**.0030**	**.0075**	**.0163**	**.1198**
Stddev	.0003	.0008	.0007	.0007	.0004	.0035	.0011	.0007	.0333
%RSD	48.43	165.2	12.69	25.34	72.95	117.0	15.02	4.287	27.79
#1	-.0009	-.0011	-.0057	.0031	.0007	.0054	.0083	.0158	.1433
#2	-.0004	.0001	-.0048	.0022	.0002	.0005	.0067	.0168	.0962

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0182**	**.0231**	**-.0016**	**7.865**	**-.0001**	**-.0182**	**-.0130**	**.0671**
Stddev	.0002	.0299	.0011	.0054	.092	.0044	.0124	.0099	.0070
%RSD	28.80	163.8	4.875	350.9	1.172	3447.	68.40	75.94	10.45
#1	-.0009	.0393	.0239	.0023	7.930	-.0032	-.0270	-.0200	.0622
#2	-.0006	-.0029	.0223	-.0054	7.800	.0030	-.0094	-.0060	.0721

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0054**	**.0003**	**.0092**	**.0843**	**.1804**	**-.0036**	**.0038**	**.0009**	**-.0102**
Stddev	.0071	.0000	.0094	.0052	.0111	.0134	.0001	.0004	.0004
%RSD	132.4	13.54	102.3	6.130	6.130	371.0	1.390	41.06	4.390
#1	-.0003	.0003	.0026	.0880	.1882	-.0131	.0038	.0007	-.0105
#2	-.0105	.0003	.0159	.0806	.1726	.0059	.0037	.0012	-.0099

Sample Name: L34674-04 Acquired: 1/18/2017 11:55:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0018	.3382	.3403
Stddev	.0036	.0111	.0135
%RSD	197.3	3.291	3.955
#1	-.0007	.3461	.3499
#2	.0043	.3303	.3308

Int. Std.	Y_3710
Units	Cts/S
Avg	19343.
Stddev	420.
%RSD	2.1734
#1	19046.
#2	19640.

Sample Name: L34674-04SDL Acquired: 1/18/2017 11:58:50 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0012**	**.0062**	**-.0217**	**-.0024**	**.0070**	**.0044**	**.0133**	**.0212**	**-.0013**
Stddev	.0016	.0034	.0035	.0023	.0000	.0001	.0048	.0099	.0006
%RSD	135.6	54.76	16.07	95.97	.3970	1.446	36.16	46.56	46.00
#1	.0023	.0038	-.0242	-.0040	.0070	.0044	.0167	.0282	-.0017
#2	.0000	.0086	-.0193	-.0008	.0070	.0043	.0099	.0142	-.0009

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**-.0022**	**-.0053**	**.0009**	**-.0025**	**.0034**	**.0032**	**-.0084**	**-.0206**
Stddev	.0002	.0003	.0008	.0001	.0009	.0035	.0001	.0151	.0195
%RSD	27.23	12.81	14.52	6.207	35.53	102.6	4.710	179.9	94.69
#1	-.0005	-.0024	-.0047	.0010	-.0019	.0009	.0033	.0023	-.0068
#2	-.0008	-.0020	-.0058	.0009	-.0031	.0059	.0031	-.0191	-.0344

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0015**	**-.0033**	**.0028**	**-.0012**	**1.610**	**.0015**	**-.0132**	**-.0094**	**.0359**
Stddev	.0001	.0006	.0002	.0010	.005	.0004	.0203	.0053	.0115
%RSD	4.268	17.33	7.344	84.41	.3347	24.90	153.8	56.62	32.07
#1	-.0015	-.0029	.0027	-.0019	1.614	.0012	.0012	-.0132	.0441
#2	-.0016	-.0037	.0030	-.0005	1.606	.0017	-.0276	-.0056	.0278

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0042**	**.0004**	**.0087**	**.0123**	**.0263**	**.0093**	**.0023**	**.0009**	**.0134**
Stddev	.0043	.0002	.0053	.0024	.0050	.0091	.0000	.0006	.0165
%RSD	102.5	41.39	60.28	19.19	19.19	98.13	.0774	69.19	123.5
#1	-.0012	.0003	.0125	.0106	.0227	.0157	.0023	.0005	.0251
#2	-.0072	.0006	.0050	.0139	.0298	.0028	.0023	.0013	.0017

Sample Name: L34674-04SDL Acquired: 1/18/2017 11:58:50 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0011	.0674	.0699
Stddev	.0010	.0019	.0014
%RSD	90.98	2.808	2.034
#1	-.0004	.0687	.0709
#2	-.0018	.0660	.0689

Int. Std.	Y_3710
Units	Cts/S
Avg	18298.
Stddev	64.
%RSD	.34724
#1	18343.
#2	18253.

Sample Name: L34674-05 Acquired: 1/18/2017 12:02:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0016**	**.0124**	**-.0158**	**-.0058**	**.0271**	**.0044**	**.0039**	**5.020**	**-.0002**
Stddev	.0008	.0079	.0001	.0015	.0002	.0001	.0080	.001	.0002
%RSD	48.29	63.48	.6997	25.80	.6415	2.728	205.6	.0100	163.2
#1	-.0021	.0180	-.0158	-.0068	.0270	.0045	-.0018	5.019	.0000
#2	-.0010	.0069	-.0159	-.0047	.0272	.0043	.0095	5.020	-.0003

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008**	**-.0001**	**-.0026**	**.0026**	**.0006**	**.0021**	**.0070**	**-.0192**	**.0682**
Stddev	.0005	.0009	.0004	.0012	.0018	.0004	.0016	.0180	.0157
%RSD	65.57	992.8	14.93	47.39	302.3	18.21	23.52	93.54	22.95
#1	.0012	.0005	-.0029	.0035	.0018	.0018	.0081	-.0319	.0571
#2	.0004	-.0007	-.0023	.0017	-.0007	.0024	.0058	-.0065	.0793

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**.0593**	**.0393**	**-.0035**	**8.263**	**.0045**	**.0113**	**-.0021**	**.0945**
Stddev	.0001	.0057	.0000	.0001	.025	.0000	.0280	.0070	.0161
%RSD	28.83	9.593	.0678	3.919	.3007	.5521	247.0	325.5	17.06
#1	-.0003	.0634	.0393	-.0036	8.246	.0044	.0311	.0028	.1059
#2	-.0005	.0553	.0393	-.0034	8.281	.0045	-.0084	-.0071	.0831

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0120**	**.0005**	**-.0109**	**.0571**	**.1222**	**.0036**	**.0093**	**.0006**	**-.0099**
Stddev	.0164	.0001	.0113	.0018	.0039	.0003	.0000	.0004	.0049
%RSD	136.1	19.69	103.3	3.157	3.157	7.037	.4193	64.91	49.67
#1	-.0236	.0004	-.0029	.0559	.1195	.0034	.0093	.0009	-.0064
#2	-.0005	.0006	-.0189	.0584	.1250	.0037	.0093	.0004	-.0133

Sample Name: L34674-05 Acquired: 1/18/2017 12:02:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0007	.1116	.1122
Stddev	.0015	.0002	.0014
%RSD	225.5	.1430	1.268
#1	.0017	.1115	.1112
#2	-.0004	.1117	.1132

Int. Std.	Y_3710
Units	Cts/S
Avg	18421.
Stddev	479.
%RSD	2.5987
#1	18760.
#2	18083.

Sample Name: L34674-06 Acquired: 1/18/2017 12:05:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0029**	**.0202**	**-.0169**	**-.0011**	**.0127**	**.0043**	**.0136**	**.8801**	**-.0013**
Stddev	.0001	.0008	.0100	.0036	.0002	.0000	.0057	.0107	.0004
%RSD	2.686	4.018	58.79	337.3	1.520	.7517	41.58	1.213	27.03
#1	-.0028	.0208	-.0240	-.0036	.0126	.0043	.0176	.8877	-.0011
#2	-.0029	.0196	-.0099	.0015	.0128	.0043	.0096	.8726	-.0016

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0001**	**-.0003**	**-.0042**	**.0022**	**-.0003**	**.0006**	**.0083**	**-.0011**	**.0401**
Stddev	.0006	.0009	.0021	.0030	.0006	.0011	.0002	.0027	.0062
%RSD	968.0	263.9	48.43	139.6	191.2	176.5	2.404	242.5	15.44
#1	-.0005	-.0010	-.0057	.0043	-.0007	-.0002	.0081	-.0030	.0445
#2	.0003	.0003	-.0028	.0000	.0001	.0014	.0084	.0008	.0357

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0012**	**.0076**	**.0156**	**-.0018**	**4.405**	**.0028**	**.0236**	**-.0055**	**.1230**
Stddev	.0000	.0092	.0002	.0004	.001	.0012	.0371	.0104	.0225
%RSD	2.287	121.1	1.235	22.73	.0169	43.73	157.2	188.8	18.27
#1	-.0012	.0011	.0154	-.0015	4.405	.0019	.0498	-.0129	.1071
#2	-.0011	.0141	.0157	-.0020	4.404	.0037	-.0026	.0018	.1388

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0079**	**.0008**	**-.0107**	**.0606**	**.1297**	**.0064**	**.0043**	**.0009**	**-.0080**
Stddev	.0035	.0000	.0217	.0012	.0026	.0003	.0000	.0007	.0007
%RSD	44.76	1.688	202.0	2.021	2.021	4.722	.5596	74.83	8.297
#1	-.0104	.0007	-.0260	.0597	.1278	.0061	.0043	.0014	-.0075
#2	-.0054	.0008	.0046	.0615	.1315	.0066	.0043	.0004	-.0084

Sample Name: L34674-06 Acquired: 1/18/2017 12:05:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0003	.1229	.1252
Stddev	.0003	.0026	.0009
%RSD	114.4	2.097	.7386
#1	.0005	.1211	.1245
#2	.0001	.1247	.1258

Int. Std.	Y_3710
Units	Cts/S
Avg	18615.
Stddev	385.
%RSD	2.0680
#1	18888.
#2	18343.

Sample Name: L34674-07 Acquired: 1/18/2017 12:08:28 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0002**	**.0168**	**-.0006**	**-.0048**	**.0408**	**.0044**	**.0114**	**6.800**	**-.0015**
Stddev	.0019	.0011	.0131	.0041	.0000	.0000	.0017	.073	.0000
%RSD	785.2	6.703	2266.	85.45	.0627	.1508	14.48	1.076	2.278
#1	.0011	.0160	-.0098	-.0019	.0409	.0044	.0126	6.852	-.0015
#2	-.0016	.0176	.0087	-.0076	.0408	.0044	.0102	6.749	-.0015

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0016**	**-.0029**	**-.0045**	**.0033**	**-.0006**	**.0059**	**.0085**	**-.0230**	**.0305**
Stddev	.0002	.0009	.0014	.0022	.0035	.0035	.0007	.0208	.0360
%RSD	15.05	31.03	31.53	64.40	604.6	60.54	8.765	90.29	118.0
#1	-.0017	-.0023	-.0035	.0018	-.0031	.0034	.0090	-.0377	.0560
#2	-.0014	-.0035	-.0056	.0049	.0019	.0084	.0080	-.0083	.0050

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.4018**	**.0031**	**-.0031**	**8.973**	**-.0001**	**.0186**	**-.0083**	**.0835**
Stddev	.0003	.0154	.0007	.0027	.009	.0016	.0207	.0005	.0073
%RSD	33.31	3.825	23.41	87.16	.1047	1165.	111.1	6.217	8.711
#1	-.0007	.4126	.0026	-.0051	8.979	.0010	.0040	-.0086	.0783
#2	-.0011	.3909	.0036	-.0012	8.966	-.0013	.0332	-.0079	.0886

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0139**	**.0005**	**.0052**	**.1096**	**.2346**	**.0014**	**.0172**	**.0007**	**.0077**
Stddev	.0042	.0002	.0118	.0003	.0006	.0043	.0001	.0003	.0126
%RSD	30.28	33.56	228.8	.2428	.2428	305.1	.4694	37.90	163.6
#1	-.0109	.0006	-.0032	.1095	.2342	-.0016	.0172	.0009	.0166
#2	-.0168	.0004	.0135	.1098	.2350	.0044	.0171	.0005	-.0012

Sample Name: L34674-07 Acquired: 1/18/2017 12:08:28 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0007	.0729	.0721
Stddev	.0001	.0003	.0018
%RSD	8.482	.4437	2.520
#1	-.0007	.0726	.0708
#2	-.0008	.0731	.0734

Int. Std.	Y_3710
Units	Cts/S
Avg	18634.
Stddev	248.
%RSD	1.3316
#1	18809.
#2	18458.

Sample Name: L34674-08 Acquired: 1/18/2017 12:11:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0036**	**.0271**	**-.0153**	**-.0056**	**.0456**	**.0045**	**.0070**	**7.845**	**-.0019**
Stddev	.0002	.0003	.0148	.0046	.0002	.0000	.0223	.080	.0001
%RSD	6.522	1.287	96.91	81.88	.3692	.8791	318.2	1.023	5.726
#1	-.0038	.0273	-.0258	-.0088	.0457	.0044	-.0088	7.902	-.0018
#2	-.0035	.0269	-.0048	-.0024	.0455	.0045	.0228	7.789	-.0020

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**-.0010**	**-.0034**	**.0014**	**-.0024**	**-.0002**	**.0104**	**.0032**	**.0819**
Stddev	.0002	.0011	.0009	.0030	.0052	.0019	.0009	.0029	.0041
%RSD	20.27	120.9	25.85	213.4	217.3	909.5	8.247	89.38	4.965
#1	-.0013	-.0001	-.0041	-.0007	-.0061	-.0016	.0111	.0052	.0791
#2	-.0010	-.0018	-.0028	.0035	.0013	.0012	.0098	.0012	.0848

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0008**	**.1375**	**.0353**	**-.0022**	**8.188**	**.0002**	**.0326**	**.0018**	**.0644**
Stddev	.0000	.0079	.0002	.0018	.039	.0010	.0054	.0046	.0198
%RSD	6.030	5.777	.6778	79.52	.4790	535.4	16.57	262.9	30.77
#1	-.0008	.1319	.0355	-.0035	8.216	-.0005	.0287	-.0015	.0784
#2	-.0009	.1431	.0351	-.0010	8.160	.0009	.0364	.0050	.0504

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0055**	**.0004**	**.0026**	**.1186**	**.2539**	**.0058**	**.0096**	**.0017**	**.0033**
Stddev	.0151	.0003	.0006	.0047	.0100	.0170	.0000	.0003	.0180
%RSD	272.6	64.14	23.49	3.924	3.924	295.5	.4577	18.15	552.5
#1	-.0051	.0006	.0022	.1153	.2468	-.0063	.0097	.0014	.0160
#2	.0162	.0002	.0030	.1219	.2609	.0178	.0096	.0019	-.0095

Sample Name: L34674-08 Acquired: 1/18/2017 12:11:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0008	.0544	.0552
Stddev	.0016	.0013	.0000
%RSD	206.6	2.449	.0831
#1	.0019	.0534	.0552
#2	-.0004	.0553	.0551

Int. Std.	Y_3710
Units	Cts/S
Avg	18581.
Stddev	214.
%RSD	1.1518
#1	18733.
#2	18430.

Sample Name: L34674-09 Acquired: 1/18/2017 12:14:51 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0022**	**.0088**	**-.0158**	**-.0031**	**.0083**	**.0044**	**.0098**	**.5452**	**-.0014**
Stddev	.0003	.0073	.0026	.0001	.0000	.0001	.0089	.0137	.0002
%RSD	11.84	83.56	16.51	1.700	.0722	1.590	90.28	2.506	14.66
#1	-.0023	.0140	-.0176	-.0031	.0083	.0045	.0036	.5549	-.0015
#2	-.0020	.0036	-.0140	-.0030	.0083	.0044	.0161	.5356	-.0013

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.0042**	**-.0045**	**.0029**	**.0000**	**-.0043**	**.0067**	**.0060**	**.0192**
Stddev	.0007	.0007	.0018	.0038	.0030	.0015	.0009	.0244	.0122
%RSD	74.25	15.71	39.77	131.9	9390.	35.42	13.45	404.3	63.41
#1	-.0014	.0046	-.0058	.0055	.0021	-.0032	.0060	-.0112	.0106
#2	-.0004	.0037	-.0032	.0002	-.0021	-.0054	.0073	.0233	.0278

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0010**	**.0225**	**.0064**	**-.0018**	**4.721**	**.0020**	**.0116**	**-.0128**	**.0700**
Stddev	.0004	.0040	.0000	.0019	.020	.0002	.0103	.0034	.0090
%RSD	45.67	17.93	.3771	103.7	.4195	10.10	89.14	26.66	12.81
#1	-.0013	.0254	.0064	-.0005	4.735	.0022	.0043	-.0152	.0637
#2	-.0007	.0197	.0064	-.0032	4.707	.0019	.0189	-.0104	.0764

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0019**	**.0003**	**.0008**	**.0508**	**.1088**	**.0034**	**.0035**	**.0013**	**-.0207**
Stddev	.0196	.0000	.0097	.0069	.0148	.0025	.0000	.0006	.0140
%RSD	1043.	6.787	1246.	13.63	13.63	72.87	1.275	50.35	67.89
#1	-.0120	.0003	.0076	.0459	.0983	.0016	.0035	.0008	-.0108
#2	.0157	.0003	-.0061	.0557	.1193	.0052	.0034	.0017	-.0306

Sample Name: L34674-09 Acquired: 1/18/2017 12:14:51 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0003	.0543	.0538
Stddev	.0025	.0001	.0015
%RSD	748.6	.2636	2.722
#1	-.0014	.0544	.0527
#2	.0021	.0542	.0548

Int. Std.	Y_3710
Units	Cts/S
Avg	18653.
Stddev	67.
%RSD	.36086
#1	18605.
#2	18700.

Sample Name: L34674-10 Acquired: 1/18/2017 12:18:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0008**	**.0143**	**-.0138**	**-.0049**	**.0047**	**.0043**	**-.0056**	**.5939**	**-.0012**
Stddev	.0010	.0005	.0088	.0014	.0000	.0000	.0068	.0004	.0009
%RSD	126.2	3.342	63.94	27.71	1.002	.3312	121.4	.0675	70.71
#1	-.0001	.0139	-.0201	-.0059	.0047	.0043	-.0105	.5942	-.0006
#2	-.0015	.0146	-.0076	-.0040	.0048	.0043	-.0008	.5936	-.0019

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0010**	**-.0014**	**-.0045**	**.0037**	**.0017**	**.0006**	**.0092**	**.0223**	**.0006**
Stddev	.0002	.0018	.0020	.0031	.0049	.0086	.0016	.0017	.0048
%RSD	20.43	130.6	43.48	85.13	297.1	1549.	17.20	7.626	806.8
#1	-.0012	-.0027	-.0031	.0015	.0052	-.0055	.0081	.0235	.0040
#2	-.0009	-.0001	-.0059	.0059	-.0018	.0067	.0103	.0211	-.0028

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0013**	**.0074**	**.0029**	**-.0016**	**2.655**	**.0011**	**.0249**	**-.0083**	**.0885**
Stddev	.0007	.0062	.0003	.0037	.006	.0009	.0086	.0105	.0051
%RSD	58.90	83.38	10.52	232.8	.2228	84.12	34.59	126.5	5.776
#1	-.0018	.0117	.0027	.0010	2.659	.0004	.0310	-.0009	.0922
#2	-.0007	.0030	.0031	-.0042	2.651	.0018	.0188	-.0158	.0849

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0024**	**.0004**	**.0158**	**.0505**	**.1080**	**-.0030**	**.0028**	**.0014**	**.0073**
Stddev	.0063	.0001	.0054	.0061	.0131	.0012	.0000	.0002	.0071
%RSD	268.3	28.64	34.55	12.11	12.11	39.57	.3811	16.61	96.05
#1	.0069	.0005	.0196	.0548	.1173	-.0022	.0028	.0012	.0123
#2	-.0021	.0003	.0119	.0462	.0988	-.0039	.0028	.0015	.0024

Sample Name: L34674-10 Acquired: 1/18/2017 12:18:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0010	.0650	.0682
Stddev	.0040	.0007	.0010
%RSD	389.4	1.122	1.445
#1	.0038	.0645	.0675
#2	-.0018	.0656	.0689

Int. Std.	Y_3710
Units	Cts/S
Avg	18628.
Stddev	120.
%RSD	.64517
#1	18713.
#2	18543.

Sample Name: CCV Acquired: 1/18/2017 12:24:28 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5019	1.044	2.012	1.035	1.026	1.029	.9982	50.34	.9746
Stddev	.0036	.018	.008	.010	.004	.009	.0143	.52	.0047
%RSD	.7138	1.759	.4190	.9357	.3985	.8364	1.437	1.026	.4777
#1	.5044	1.057	2.018	1.042	1.029	1.035	1.008	50.71	.9779
#2	.4994	1.031	2.006	1.028	1.023	1.023	.9881	49.98	.9713
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9809	.9663	.9896	.9861	1.019	1.009	1.010	.9987	10.22
Stddev	.0111	.0025	.0079	.0114	.006	.008	.004	.0058	.04
%RSD	1.129	.2568	.7936	1.160	.5517	.7668	.3916	.5774	.3949
#1	.9888	.9680	.9952	.9942	1.023	1.014	1.013	.9946	10.25
#2	.9731	.9645	.9841	.9780	1.015	1.003	1.007	1.003	10.19
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.043	50.11	1.004	1.017	51.80	1.042	2.586	1.909	26.20
Stddev	.006	.53	.004	.001	.24	.001	.044	.004	.18
%RSD	.5586	1.065	.4286	.0831	.4663	.0645	1.720	.1923	.6869
#1	1.047	50.48	1.007	1.017	51.97	1.042	2.617	1.906	26.33
#2	1.039	49.73	1.001	1.016	51.63	1.041	2.555	1.911	26.08
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/18/2017 12:24:28 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.067	1.022	2.033	9.843	F 21.06	1.005	1.028	1.024	1.968
Stddev	.008	.007	.002	.079	.17	.013	.005	.008	.003
%RSD	.3780	.6534	.1152	.8069	.8069	1.333	.5093	.7435	.1720
#1	2.072	1.027	2.035	9.899	21.18	1.014	1.032	1.029	1.970
#2	2.061	1.017	2.032	9.787	20.94	.9955	1.024	1.018	1.966
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.024	.9590	.9828
Stddev	.008	.0026	.0079
%RSD	.7900	.2733	.8078
#1	1.030	.9608	.9885
#2	1.019	.9571	.9772
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	17871.
Stddev	90.
%RSD	.50562
#1	17934.
#2	17807.

Sample Name: CCB Acquired: 1/18/2017 12:27:33 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**.0092**	**-.0022**	**-.0023**	**.0018**	**.0050**	**-.0007**	**-.0098**	**-.0008**
Stddev	.0023	.0031	.0025	.0032	.0001	.0002	.0210	.0027	.0002
%RSD	543.3	34.12	114.2	135.6	6.776	3.445	3187.	27.79	22.54
#1	.0012	.0070	-.0039	-.0001	.0019	.0051	-.0155	-.0118	-.0007
#2	-.0021	.0114	-.0004	-.0046	.0017	.0048	.0142	-.0079	-.0009
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0010**	**.0001**	**-.0034**	**.0046**	**-.0017**	**-.0046**	**.0035**	**-.0107**	**-.0613**
Stddev	.0009	.0029	.0004	.0045	.0056	.0014	.0001	.0334	.0045
%RSD	91.55	2244.	12.10	95.92	336.7	29.89	3.249	311.6	7.297
#1	-.0016	-.0019	-.0031	.0078	.0023	-.0037	.0036	-.0344	-.0582
#2	-.0003	.0021	-.0037	.0015	-.0056	-.0056	.0034	.0129	-.0645
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**.0191**	**-.0014**	**-.0049**	**.0271**	**.0003**	**-.0078**	**-.0057**	**.0662**
Stddev	.0002	.0116	.0000	.0012	.0027	.0038	.0162	.0123	.0003
%RSD	29.51	60.60	2.770	25.46	9.846	1463.	207.3	214.8	.4380
#1	-.0004	.0273	-.0013	-.0040	.0290	-.0024	.0036	.0030	.0664
#2	-.0006	.0109	-.0014	-.0058	.0252	.0029	-.0193	-.0144	.0660
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/18/2017 12:27:33 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033	.0012	.0050	.0056	.0121	.0020	.0027	.0013	-.0098
Stddev	.0001	.0000	.0009	.0021	.0045	.0016	.0001	.0008	.0053
%RSD	4.015	3.225	18.35	37.30	37.30	77.79	3.205	62.15	53.77
#1	.0032	.0012	.0056	.0071	.0153	.0031	.0026	.0007	-.0135
#2	.0034	.0011	.0043	.0042	.0089	.0009	.0027	.0018	-.0061
Check ?	Chk Pass	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	-.0009	-.0026	-.0009
Stddev	.0008	.0023	.0007
%RSD	82.43	87.61	83.53
#1	-.0004	-.0010	-.0004
#2	-.0015	-.0042	-.0014
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	18239.
Stddev	170.
%RSD	.93041
#1	18359.
#2	18119.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52603	PCN	Nitric acid:	52603	PCN
Hydrochloric acid:	52400	PCN	Hydrochloric acid:	52602	PCN

VERIFIED BY: AEB 1/18/17

ICP HW

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-D-846
Group ID: MA-G-ICP_-HW
Method Ref: M6010B
SOP Ref: SOPII012

WG416030

ACZ Laboratories, Inc

Instrument ID: ICP~~7~~8 VEB 1/12/17
Analyst: GSS
ACZ Dept: 33
Create Date: 01/11/2017 13:34
Start Date/Time: 1/11/17 2P
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	BHW	Dilution
1	WG416030ICV	II161209-1			1			✓	1
2	WG416030ICB	NONE			1			✓	1
3	WG416030PQV	II161228-3			1			✓	1
4	WG416030ICSAB	II161031-5			1			✓	1
5	WG415942PBS	NONE			5			✓	5
6	L34445-01	TP-6_7_9 (2-5)			5	0.164		✓	5
7	L34445-01DUP	NONE			5			✓	5
8	L34445-02	TP-12 (2-4)			5	0.364		✓	5
9	L34445-03	TP-15_16 (2-13)			5	0.181		✓	5
10	L34445-04	TP-20 (1-4)			5	0.125		✓	5
11	L34674-01	SB-06GT (1.5-10)			5	0.374		✓	5
12	L34674-01AS	II170109-2			1			✓	5
13	WG416030CCV1	II161227-1			1			✓	1
14	WG416030CCB1	NONE			1			✓	1
15	L34674-01ASD	II170109-2			1			✓	5
16	L34674-02	SB-07GT (0-4)			5	0.174		✓	5
17	L34674-03	SB-09GT (8-12)			5	0.28		✓	5
18	L34674-04	SB-09GT (18-22)			5	0.23		✓	5
19	L34674-04SDL	NONE			1			✓	5
20	L34674-05	SB-12GT (0-27)			5	0.356		✓	5
21	L34674-06	SB-13AL (0-25)			5	0.402		✓	5
22	L34674-07	SB-14AL (0-15)			5	0.329		✓	5
23	L34674-08	SB-14AL (15-35)			5	0.415		✓	5

Report Comments: _____

Internal Comments _____

AREV: VEB 1/12/17
Initials, Date

SREV: 1·12·17
Initials, Date

ICP HW

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-D-846
Group ID: MA-G-ICP_-HW
Method Ref: M6010B
SOP Ref: SOPII012

WG416030

ACZ Laboratories, Inc

Instrument ID: ICP7
Analyst:
ACZ Dept: 33
Create Date: 01/11/2017 13:34
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	BHW	Dilution
24	L34674-09	SB-15AL (0-25)			5	0.235		✔	5
25	WG416030CCV2	II161227-1			1			✔	1
26	WG416030CCB2	NONE			1			✔	1
27	L34674-10	SB-15AL (25-50)			5	0.239		✔	5
28	L34674-14	SB-09GT (8-12-DUPLIC			5	0.242		✔	5
29	WG416030CCV3	II161227-1						✔	
30	WG416030CCB3	NONE						✔	

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L34445-1701201627

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	LSEB
Date:	1/12/17
Approved By:	[illegible]
Date:	1-12-17

Work Group:	WG416030
Sample Type:	HW
Analysis Date:	1/11/17
Analyst:	LSEB

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	√		
2) Are all of the QC critera listed in LIMS within specified limits? **		√	
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			√
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	√		
5) Is a current standard/reagent form attached to the workgroup?	√		
6) Have all dilutions performed at the bench been checked off on the benchsheet?			√
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			√
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			√
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			√
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			√
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	√		

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
L34445-01 DUP	B RPD=20%	RA

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416030

Date Reported: 12-Jan-17
Run ID: R1491780
Date Analyzed: 11-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416030ICV

Tag:

Measured: 1/11/2017 4:09:22 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	1.985	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	99	1		%	++	0.01	0.05			
SREV	BORON	RSD	2.312	1		mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND	1.943	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND	1.947	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	REC	97	1		%	++	0.005	0.02			
SREV	CADMIUM	REC	97	1		%	++	0.005	0.02			
SREV	CADMIUM	RSD	2.795	1		mg/L	++	0.005	0.015			
SREV	CADMIUM	RSD	2.329	1		mg/L	++	0.005	0.015			
SREV	MOLYBDENUM	FOUND	2.004	1		mg/L	++	0.02	0.1			
SREV	MOLYBDENUM	REC	100	1		%	++	0.02	0.1			
SREV	MOLYBDENUM	RSD	2.531	1		mg/L	++	0.02	0.1			
SREV	POTASSIUM	FOUND	19.73	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	99	1		%	++	0.2	1			
SREV	POTASSIUM	RSD	1.461	1		mg/L	++	0.2	1			
SREV	SELENIUM	FOUND	4.021	1		mg/L	++	0.05	0.3			
SREV	SELENIUM	REC	101	1		%	++	0.05	0.3			
SREV	SELENIUM	RSD	2.517	1		mg/L	++	0.05	0.25			
SREV	YTTRIUM	REC	99.8	1		%	++	0.001	0.005			

WG416030ICB

Tag:

Measured: 1/11/2017 4:12:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.02	0.1			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.05	0.3			
SREV	YTTRIUM	REC	100.86	1		%	++	0.001	0.005			

WG416030PQV

Tag:

Measured: 1/11/2017 4:15:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	0.055	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	110	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	97.15	1		%	++	0.001	0.005			

WG416030ICSAB

Tag:

Measured: 1/11/2017 4:18:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	0.478	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	96	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	100.65	1		%	++	0.001	0.005			

WG415942PBS

Tag: Measured: 1/11/2017 4:25:13 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND		5	U	mg/Kg	++	0.05	0.3			
SREV	YTTRIUM	REC	102.32	5		%	++	0.001	0.005			

L34445-01

Tag: 1 Measured: 1/11/2017 4:28:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW		5	U	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34445-01DUP

Tag: Measured: 1/11/2017 4:31:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	0.057	5	B	mg/Kg	++	0.05	0.3			
SREV	BORON	RPD	200	5	B	%	ALRT	0.05	0.3		RA	
SREV	YTTRIUM	REC	99.71	5		%	++	0.001	0.005			

L34445-02

Tag: 1 Measured: 1/11/2017 4:34:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.25	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	99.8	5		%	++	0.001	0.005			

L34445-03

Tag: 1 Measured: 1/11/2017 4:37:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.08	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	101	5		%	++	0.001	0.005			

L34445-04

Tag: 1 Measured: 1/11/2017 4:41:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.10	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	101	5		%	++	0.001	0.005			

L34674-01

Tag: 1 Measured: 1/11/2017 4:44:22 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.18	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34674-01AS

Tag: Measured: 1/11/2017 4:47:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	2.605	5		mg/Kg	++	0.05	0.3			
SREV	BORON	REC	97	5		%	++	0.05	0.3			
SREV	YTTRIUM	REC	99.23	5		%	++	0.001	0.005			

L34674-01ASD

Tag: Measured: 1/11/2017 4:50:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	2.658	5		mg/Kg	++	0.05	0.3			
SREV	BORON	REC	99	5		%	++	0.05	0.3			
SREV	BORON	RPD	2	5		%	++	0.05	0.3			
SREV	YTTRIUM	REC	98.3	5		%	++	0.001	0.005			

L34674-02 Tag: 1 Measured: 1/11/2017 4:53:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.20	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	99.4	5		%	++	0.001	0.005			

WG416030CCV1 Tag: Measured: 1/11/2017 4:57:02 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	1.017	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	102	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	99.22	1		%	++	0.001	0.005			

WG416030CCB1 Tag: Measured: 1/11/2017 5:00:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	YTTRIUM	REC	102.65	1		%	++	0.001	0.005			

L34674-03 Tag: 1 Measured: 1/11/2017 5:03:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.07	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	99.5	5		%	++	0.001	0.005			

L34674-04 Tag: 1 Measured: 1/11/2017 5:06:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW		5	U	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34674-04SDL Tag: 1 Measured: 1/11/2017 5:09:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	D		5	U	%	++	0.05	0.3			
SREV	BORON	FOUND		5	U	mg/Kg	++	0.05	0.3			
SREV	BORON	REG	0	5	U	mg/Kg	++	0.05	0.3			
SREV	YTTRIUM	REC	99.57	5		%	++	0.001	0.005			

L34674-05 Tag: 1 Measured: 1/11/2017 5:12:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.07	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	103	5		%	++	0.001	0.005			

L34674-06 Tag: 1 Measured: 1/11/2017 5:16:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.06	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	100	5		%	++	0.001	0.005			

L34674-07 Tag: 1 Measured: 1/11/2017 5:19:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.11	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34674-08 Tag: 1 Measured: 1/11/2017 5:22:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW		5	U	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	100	5		%	++	0.001	0.005			

L34674-09 Tag: 1 Measured: 1/11/2017 5:25:43 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.13	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	103	5		%	++	0.001	0.005			

L34674-10 Tag: 1 Measured: 1/11/2017 5:28:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.19	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34674-14 Tag: 1 Measured: 1/11/2017 5:32:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.09	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

WG416030CCV2 Tag: Measured: 1/11/2017 5:35:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	0.974	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	97	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	101.26	1		%	++	0.001	0.005			

WG416030CCB2 Tag: Measured: 1/11/2017 5:38:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	YTTRIUM	REC	99.59	1		%	++	0.001	0.005			

WG416030CCV3 Tag: Measured: 1/11/2017 5:41:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	BORON	FOUND	1.01	1		mg/L	++	0.01	0.05			
FAIL	BORON	REC	101	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	99.61	1		%	++	0.001	0.005			

WG416030CCB3 Tag: Measured: 1/11/2017 5:44:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	YTTRIUM	REC	102.36	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/11/2017 15:56:49 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0004**	**-.0001**	**-.0000**	**.0001**	**.0017**	**-.0065**	**.0001**	**-.0069**	**-.0002**
Stddev	.0000	.0001	.0000	.0001	.0004	.0001	.0001	.0000	.0000
%RSD	6.351	100.4	56.56	71.93	24.57	.9713	48.80	.0943	7.205
#1	-.0003	-.0000	-.0000	.0001	.0014	-.0066	.0001	-.0069	-.0002
#2	-.0004	-.0001	-.0000	.0000	.0020	-.0065	.0001	-.0069	-.0002

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0001**	**.0000**	**-.0001**	**.0002**	**.0001**	**.0000**	**.0001**	**.0002**	**.0054**
Stddev	.0001	.0000	.0000	.0000	.0001	.0001	.0000	.0001	.0000
%RSD	110.6	44.22	59.69	5.610	188.5	278.8	1.127	29.56	.2140
#1	.0001	.0000	-.0000	.0002	-.0000	-.0000	.0001	.0001	.0054
#2	.0000	.0000	-.0001	.0002	.0001	.0001	.0001	.0002	.0054

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0023**	**-.0000**	**.0001**	**.0001**	**.0093**	**.0000**	**-.0002**	**.0000**	**.0001**
Stddev	.0002	.0001	.0000	.0000	.0002	.0000	.0000	.0000	.0000
%RSD	7.432	213.6	48.36	14.22	1.999	39.82	5.283	36.60	21.01
#1	-.0022	-.0001	.0001	.0000	.0094	.0000	-.0002	.0000	.0001
#2	-.0024	.0000	.0000	.0001	.0092	.0000	-.0002	.0001	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0005**	**-.0000**	**.0005**	**.0005**	**.0000**	**.0007**	**-.0000**	**-.0000**
Stddev	.0001	.0000	.0000	.0000	.0000	.0000	.0001	.0000	.0000
%RSD	287.2	6.769	91.08	.4702	.4702	7.680	8.895	109.5	18.48
#1	-.0000	.0005	-.0000	.0005	.0005	.0000	.0007	-.0000	-.0000
#2	.0001	.0005	-.0000	.0005	.0005	.0000	.0006	-.0001	-.0001

Sample Name: Blank Acquired: 1/11/2017 15:56:49 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**-.0004**	**-.0000**	**.0000**
Stddev	.0000	.0000	.0000
%RSD	1.135	71.01	36.79
#1	-.0004	-.0000	.0000
#2	-.0004	-.0001	.0000

Int. Std.	Y_3710
Units	Cts/S
Avg	**13313.**
Stddev	97.
%RSD	.72717
#1	13382.
#2	13245.

Sample Name: L34445-01DUP Acquired: 1/11/2017 16:31:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0027**	**.2143**	**-.0327**	**.0113**	**.2754**	**.0013**	**-.0150**	**337.5**	**.0114**
Stddev	.0041	.0048	.0011	.0024	.0021	.0000	.0005	.8	.0007
%RSD	148.6	2.226	3.479	21.64	.7488	1.487	3.330	.2426	6.314
#1	.0001	.2177	-.0319	.0096	.2740	.0013	-.0154	338.0	.0109
#2	-.0056	.2109	-.0335	.0130	.2769	.0013	-.0147	336.9	.0119

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0109**	**-.0005**	**.0026**	**-.0048**	**.0043**	**.1042**	**.1040**	**-.0210**	**6.934**
Stddev	.0000	.0007	.0013	.0012	.0023	.0005	.0026	.0040	.092
%RSD	.3362	144.1	51.08	25.48	52.14	.4321	2.518	18.97	1.327
#1	.0108	-.0010	.0016	-.0057	.0059	.1045	.1058	-.0182	6.869
#2	.0109	.0000	.0035	-.0039	.0027	.1039	.1021	-.0238	6.999

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0115**	**40.35**	**.0170**	**.0010**	**2.166**	**.0095**	**.2476**	**-.0007**	**.4571**
Stddev	.0008	.20	.0006	.0025	.023	.0048	.0129	.0054	.0053
%RSD	6.624	.5035	3.288	237.3	1.061	51.01	5.194	726.3	1.151
#1	.0109	40.49	.0166	-.0007	2.150	.0061	.2385	.0031	.4608
#2	.0120	40.21	.0174	.0028	2.182	.0129	.2567	-.0045	.4534

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0049**	**-.0004**	**.0108**	**3.929**	**8.408**	**-.0107**	**.6270**	**.0073**	**-.0105**
Stddev	.0135	.0002	.0311	.004	.008	.0074	.0032	.0003	.0497
%RSD	274.6	36.94	288.7	.0922	.0922	69.83	.5167	4.221	474.4
#1	.0046	-.0006	-.0112	3.931	8.413	-.0159	.6247	.0075	-.0457
#2	-.0144	-.0003	.0328	3.926	8.402	-.0054	.6293	.0071	.0247

Sample Name: L34445-01DUP Acquired: 1/11/2017 16:31:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0015	.0178	.0212
Stddev	.0000	.0000	.0000
%RSD	1.044	.2122	.1914
#1	.0015	.0178	.0212
#2	.0015	.0178	.0213

Int. Std.	Y_3710
Units	Cts/S
Avg	13275.
Stddev	178.
%RSD	1.3427
#1	13401.
#2	13149.

Sample Name: CCB Acquired: 1/11/2017 17:00:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0024**	**-.0101**	**-.0274**	**.0006**	**.0021**	**.0021**	**-.0073**	**.0632**	**-.0014**
Stddev	.0073	.0065	.0061	.0037	.0002	.0003	.0071	.0261	.0001
%RSD	304.1	64.06	22.23	613.9	10.10	15.77	97.48	41.33	8.509
#1	-.0028	-.0055	-.0231	.0032	.0022	.0023	-.0023	.0817	-.0015
#2	.0075	-.0146	-.0317	-.0020	.0019	.0018	-.0123	.0447	-.0013
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0021**	**-.0013**	**.0017**	**-.0015**	**.0015**	**-.0104**	**-.0029**	**-.0260**	**.0145**
Stddev	.0001	.0030	.0006	.0002	.0000	.0002	.0019	.0146	.0272
%RSD	5.522	240.5	31.85	15.77	2.793	2.060	64.46	55.99	188.0
#1	-.0020	-.0034	.0014	-.0017	.0015	-.0103	-.0016	-.0363	-.0048
#2	-.0022	.0009	.0021	-.0014	.0014	-.0106	-.0042	-.0157	.0338
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009**	**-.0072**	**-.0071**	**.0041**	**.0392**	**.0008**	**.0518**	**-.0085**	**.0885**
Stddev	.0004	.0204	.0001	.0003	.0070	.0005	.0695	.0020	.0258
%RSD	52.71	282.3	.7116	8.528	17.81	62.84	134.3	23.11	29.20
#1	.0012	.0072	-.0070	.0043	.0441	.0005	.0026	-.0099	.1068
#2	.0005	-.0217	-.0071	.0038	.0342	.0012	.1009	-.0071	.0702
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 17:00:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019	.0001	.0323	.0022	.0046	-.0170	.0017	-.0004	-.0033
Stddev	.0302	.0004	.0123	.0007	.0014	.0014	.0003	.0004	.0160
%RSD	1582.	576.3	37.99	30.11	30.11	8.430	19.43	107.8	486.7
#1	-.0195	.0003	.0236	.0026	.0056	-.0160	.0019	-.0001	.0080
#2	.0233	-.0002	.0409	.0017	.0036	-.0180	.0014	-.0007	-.0146
Check ?	Chk Pass	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	.0025	.0008	.0020
Stddev	.0017	.0014	.0000
%RSD	66.42	179.5	.8410
#1	.0013	-.0002	.0020
#2	.0037	.0018	.0020
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	13666.
Stddev	240.
%RSD	1.7574
#1	13836.
#2	13496.

Sample Name: CalStd-1 Acquired: 1/11/2017 16:00:01 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0227**	**.1332**	**.0039**	**.0293**	**3.313**	**1.555**	**.0060**	**.0402**	**.0581**
Stddev	.0001	.0005	.0001	.0004	.007	.010	.0000	.0003	.0005
%RSD	.5284	.3876	1.357	1.327	.2130	.6565	.3204	.7052	.7794
#1	.0228	.1335	.0038	.0290	3.318	1.563	.0060	.0404	.0578
#2	.0226	.1328	.0039	.0296	3.308	1.548	.0060	.0400	.0584

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0490**	**.0174**	**.0614**	**.0834**	**.0476**	**.0402**	**.1022**	**.0036**	**.1287**
Stddev	.0003	.0001	.0005	.0006	.0003	.0004	.0002	.0001	.0009
%RSD	.6549	.7173	.8806	.6752	.5431	1.002	.2291	3.729	.6641
#1	.0488	.0173	.0610	.0838	.0478	.0405	.1024	.0036	.1293
#2	.0492	.0175	.0618	.0830	.0474	.0399	.1020	.0037	.1281

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.7752**	**.0201**	**.2496**	**.0131**	**.1149**	**.0029**	**.0086**	**.0038**	**.0022**
Stddev	.0005	.0002	.0002	.0001	.0000	.0000	.0000	.0000	.0001
%RSD	.0613	1.064	.0683	.7184	.0323	.7667	.3622	.0315	2.844
#1	.7749	.0203	.2498	.0130	.1149	.0029	.0086	.0038	.0022
#2	.7755	.0200	.2495	.0131	.1149	.0029	.0086	.0038	.0023

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.7613**	**.0039**	**.0365**	**.0365**	**.0066**	**2.424**	**.0854**	**.0092**	**.0192**
Stddev	.0032	.0000	.0004	.0004	.0000	.007	.0006	.0000	.0001
%RSD	.4224	1.210	1.231	1.231	.4392	.2867	.6877	.1647	.4280
#1	.7636	.0038	.0368	.0368	.0066	2.429	.0858	.0092	.0192
#2	.7590	.0039	.0362	.0362	.0066	2.419	.0850	.0093	.0191

Sample Name: CalStd-1 Acquired: 1/11/2017 16:00:01 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0201	.0294
Stddev	.0000	.0002
%RSD	.1216	.7046
#1	.0201	.0292
#2	.0201	.0295

Int. Std.	Y_3710
Units	Cts/S
Avg	13159.
Stddev	87.
%RSD	.66074
#1	13221.
#2	13098.

Sample Name: CalStd-2 Acquired: 1/11/2017 16:03:07 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0453	.2649	.0076	.0585	6.655	3.130	.0118	.0865	.1161
Stddev	.0008	.0044	.0001	.0003	.076	.044	.0000	.0017	.0002
%RSD	1.734	1.647	.7779	.4435	1.136	1.418	.1564	2.020	.2038
#1	.0459	.2680	.0077	.0587	6.708	3.162	.0118	.0877	.1162
#2	.0448	.2618	.0076	.0584	6.601	3.099	.0118	.0852	.1159

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0975	.0348	.1229	.1657	.0942	.0795	.2031	.0071	.2475
Stddev	.0004	.0001	.0001	.0027	.0015	.0016	.0026	.0003	.0025
%RSD	.3796	.2305	.1188	1.601	1.570	2.028	1.288	3.885	1.025
#1	.0977	.0348	.1230	.1675	.0953	.0806	.2050	.0073	.2493
#2	.0972	.0347	.1228	.1638	.0932	.0784	.2013	.0069	.2457

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.557	.0400	.4850	.0261	.2183	.0060	.0169	.0075	.0045
Stddev	.022	.0003	.0060	.0001	.0035	.0000	.0000	.0001	.0000
%RSD	1.394	.7874	1.245	.5312	1.592	.0892	.2167	1.299	.0789
#1	1.573	.0402	.4892	.0262	.2207	.0060	.0169	.0076	.0045
#2	1.542	.0397	.4807	.0260	.2158	.0060	.0169	.0075	.0045

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.521	.0079	.0721	.0721	.0131	4.861	.1698	.0186	.0389
Stddev	.021	.0000	.0011	.0011	.0000	.059	.0019	.0001	.0005
%RSD	1.356	.0937	1.540	1.540	.1368	1.204	1.122	.3649	1.377
#1	1.536	.0079	.0729	.0729	.0131	4.902	.1712	.0186	.0392
#2	1.507	.0079	.0713	.0713	.0131	4.819	.1685	.0185	.0385

Sample Name: CalStd-2 Acquired: 1/11/2017 16:03:07 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0401	.0587
Stddev	.0001	.0002
%RSD	.3372	.3162
#1	.0402	.0589
#2	.0400	.0586

Int. Std.	Y_3710
Units	Cts/S
Avg	13394.
Stddev	37.
%RSD	.27401
#1	13368.
#2	13420.

Sample Name: CalStd-3 Acquired: 1/11/2017 16:06:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.830	2.438	.3978	10.65	.0252	.0758
Stddev	.003	.008	.0007	.06	.0003	.0009
%RSD	.1860	.3271	.1724	.5698	1.218	1.234
#1	1.828	2.432	.3973	10.61	.0250	.0751
#2	1.833	2.444	.3983	10.69	.0254	.0765

Int. Std.	Y_3710
Units	Cts/S
Avg	13289.
Stddev	156.
%RSD	1.1755
#1	13399.
#2	13179.

Sample Name: ICV Acquired: 1/11/2017 16:09:22 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9837	2.010	3.969	1.985	1.962	2.014	1.966	99.32	1.943
Stddev	.0196	.025	.106	.046	.029	.029	.047	1.36	.054
%RSD	1.992	1.263	2.657	2.312	1.498	1.417	2.365	1.371	2.795
#1	.9699	1.992	3.894	1.952	1.941	1.994	1.934	98.36	1.905
#2	.9976	2.028	4.044	2.017	1.983	2.034	1.999	100.3	1.981
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.947	1.918	1.943	1.942	1.987	1.951	1.968	1.985	19.73
Stddev	.045	.054	.042	.033	.030	.036	.034	.046	.29
%RSD	2.329	2.794	2.178	1.714	1.515	1.865	1.723	2.336	1.461
#1	1.915	1.881	1.913	1.918	1.966	1.925	1.945	1.952	19.52
#2	1.980	1.956	1.973	1.966	2.009	1.977	1.992	2.017	19.93
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.958	99.99	1.940	2.004	100.1	2.029	F 5.332	3.806	50.07
Stddev	.025	1.32	.020	.051	1.6	.048	.127	.081	1.36
%RSD	1.288	1.323	1.033	2.531	1.613	2.370	2.381	2.128	2.722
#1	1.941	99.05	1.926	1.968	98.96	1.995	5.242	3.749	49.11
#2	1.976	100.9	1.954	2.040	101.2	2.063	5.421	3.864	51.04
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass
Value							5.005		
Range							5.440%		

Sample Name: ICV Acquired: 1/11/2017 16:09:22 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.152**	**1.973**	**4.021**	**19.26**	F **41.21**	**1.993**	**1.976**	**1.987**	**3.847**
Stddev	.135	.029	.101	.24	.51	.031	.032	.028	.084
%RSD	3.244	1.466	2.517	1.234	1.234	1.557	1.609	1.390	2.177
#1	4.057	1.953	3.949	19.09	40.85	1.971	1.953	1.968	3.788
#2	4.248	1.994	4.092	19.42	41.57	2.015	1.998	2.007	3.907
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					20.00				
Range					5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**2.003**	**1.925**	**1.944**
Stddev	.036	.045	.043
%RSD	1.787	2.335	2.188
#1	1.978	1.893	1.914
#2	2.029	1.956	1.974
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**13286.**
Stddev	320.
%RSD	2.4074
#1	13512.
#2	13060.

Sample Name: ICB Acquired: 1/11/2017 16:12:26 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0024**	**-.0140**	**-.0243**	**.0033**	**.0028**	**.0025**	**-.0009**	**.0247**	**.0003**
Stddev	.0002	.0017	.0161	.0010	.0006	.0007	.0045	.0472	.0001
%RSD	7.344	11.93	66.16	31.50	20.10	29.34	477.5	190.8	31.76
#1	.0026	-.0151	-.0129	.0040	.0032	.0030	.0022	.0581	.0003
#2	.0023	-.0128	-.0356	.0025	.0024	.0020	-.0041	-.0086	.0004
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**.0010**	**.0015**	**-.0061**	**.0045**	**-.0047**	**-.0022**	**-.0058**	**.0089**
Stddev	.0004	.0001	.0007	.0000	.0025	.0021	.0004	.0178	.0182
%RSD	86.03	11.34	46.01	.3343	56.33	43.88	16.19	307.2	204.7
#1	-.0008	.0011	.0020	-.0061	.0063	-.0033	-.0025	.0068	-.0040
#2	-.0002	.0009	.0010	-.0061	.0027	-.0062	-.0020	-.0184	.0217
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0021**	**.0093**	**-.0085**	**.0044**	**.0633**	**.0002**	**.0492**	**-.0120**	**.0971**
Stddev	.0006	.0426	.0004	.0040	.0275	.0040	.0028	.0144	.0279
%RSD	30.83	458.5	5.137	91.12	43.36	1660.	5.749	120.2	28.76
#1	.0025	.0394	-.0081	.0072	.0828	-.0026	.0472	-.0221	.1169
#2	.0016	-.0208	-.0088	.0016	.0439	.0031	.0512	-.0018	.0774
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/11/2017 16:12:26 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0146	.0008	.0099	.0123	.0263	.0001	.0022	.0005	.0355
Stddev	.0096	.0005	.0062	.0045	.0097	.0033	.0006	.0020	.0067
%RSD	65.98	61.51	62.27	37.01	37.01	4334.	26.60	380.2	18.88
#1	-.0078	.0012	.0055	.0155	.0332	-.0023	.0026	.0020	.0402
#2	-.0214	.0005	.0143	.0091	.0194	.0024	.0018	-.0009	.0307
Check ?	Chk Pass	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	.0030	-.0008	.0021
Stddev	.0016	.0021	.0005
%RSD	54.88	260.1	25.38
#1	.0018	.0007	.0017
#2	.0041	-.0023	.0024
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	13428.
Stddev	275.
%RSD	2.0465
#1	13623.
#2	13234.

Sample Name: PQV Acquired: 1/11/2017 16:15:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0247	.1456	.1649	.0548	.0175	.0534	.2065	.5051	.0145
Stddev	.0031	.0042	.0060	.0023	.0001	.0002	.0174	.0031	.0007
%RSD	12.33	2.852	3.658	4.137	.2902	.4057	8.419	.6128	4.984
#1	.0269	.1426	.1606	.0532	.0175	.0536	.1942	.5073	.0150
#2	.0226	.1485	.1692	.0564	.0174	.0533	.2188	.5029	.0140
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0133	.0517	.0553	.0514	.0575	.0441	.0492	.5255	1.056
Stddev	.0000	.0020	.0001	.0003	.0006	.0058	.0022	.0112	.026
%RSD	.3258	3.847	.2516	.5599	.9601	13.25	4.531	2.124	2.458
#1	.0132	.0503	.0552	.0512	.0571	.0399	.0507	.5334	1.074
#2	.0133	.0531	.0554	.0516	.0579	.0482	.0476	.5176	1.038
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0428	1.054	F .0170	.1072	1.090	.0428	.5682	.1532	1.349
Stddev	.0010	.016	.0005	.0018	.013	.0044	.0234	.0097	.025
%RSD	2.253	1.466	2.974	1.658	1.155	10.34	4.124	6.302	1.849
#1	.0435	1.065	.0173	.1085	1.099	.0460	.5847	.1600	1.331
#2	.0421	1.043	.0166	.1060	1.081	.0397	.5516	.1464	1.367
Check ?	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value			.0250						
Range			-30.55%						

Sample Name: PQV Acquired: 1/11/2017 16:15:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1499	.5144	.2760	.5270	F 1.128	.2001	.0272	.0259	.5144
Stddev	.0170	.0034	.0153	.0200	.043	.0010	.0001	.0003	.0041
%RSD	11.35	.6611	5.544	3.791	3.791	.4815	.3891	1.089	.7934
#1	.1620	.5168	.2652	.5411	1.158	.2008	.0273	.0261	.5173
#2	.1379	.5120	.2869	.5129	1.098	.1994	.0272	.0257	.5116
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0247	.0556	.0557
Stddev	.0001	.0006	.0001
%RSD	.2908	1.045	.1825
#1	.0246	.0560	.0558
#2	.0247	.0552	.0556
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	12933.
Stddev	59.
%RSD	.45355
#1	12975.
#2	12892.

Sample Name: ICSAB Acquired: 1/11/2017 16:18:51 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4909	245.1	4.815	.4783	.2397	.2367	.4724	235.1	.4507
Stddev	.0009	.1	.005	.0116	.0004	.0000	.0006	.2	.0078
%RSD	.1898	.0373	.1120	2.424	.1662	.0188	.1285	.0924	1.729
#1	.4903	245.2	4.819	.4701	.2394	.2366	.4720	234.9	.4452
#2	.4916	245.1	4.811	.4865	.2400	.2367	.4729	235.2	.4562
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4533	.2259	.2372	.2262	.2367	93.13	93.23	.4689	24.49
Stddev	.0079	.0017	.0025	.0020	.0067	.08	.04	.0459	.01
%RSD	1.733	.7406	1.051	.8843	2.817	.0878	.0430	9.794	.0596
#1	.4478	.2247	.2389	.2248	.2319	93.07	93.20	.4365	24.50
#2	.4589	.2271	.2354	.2276	.2414	93.19	93.26	.5014	24.48
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5001	244.8	.2243	.4766	25.05	.4550	4.824	.4206	2.465
Stddev	.0001	.3	.0008	.0061	.01	.0062	.053	.0148	.013
%RSD	.0261	.1278	.3521	1.282	.0515	1.356	1.095	3.527	.5096
#1	.5002	245.0	.2237	.4723	25.06	.4506	4.787	.4101	2.456
#2	.5001	244.6	.2248	.4809	25.04	.4593	4.861	.4311	2.474
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/11/2017 16:18:51 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4699	.4875	4.845	2.407	F 5.152	2.336	.4805	.4792	2.267
Stddev	.0210	.0003	.073	.010	.021	.029	.0010	.0025	.040
%RSD	4.476	.0574	1.515	.4144	.4144	1.259	.2106	.5205	1.752
#1	.4550	.4873	4.793	2.400	5.137	2.315	.4798	.4775	2.239
#2	.4847	.4877	4.897	2.414	5.167	2.356	.4812	.4810	2.295
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2360	.4535	.4796
Stddev	.0027	.0098	.0060
%RSD	1.136	2.155	1.246
#1	.2342	.4466	.4754
#2	.2379	.4604	.4838
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13399.
Stddev	200.
%RSD	1.4896
#1	13540.
#2	13258.

Sample Name: WASH Acquired: 1/11/2017 16:21:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005**	**.0833**	**-.0124**	**-.0017**	**.0016**	**.0015**	**-.0080**	**.0476**	**-.0013**
Stddev	.0004	.0226	.0068	.0020	.0001	.0002	.0041	.0323	.0000
%RSD	76.82	27.09	54.75	119.2	7.781	14.95	51.52	67.78	.8464
#1	.0007	.0993	-.0076	-.0003	.0015	.0016	-.0051	.0704	-.0013
#2	.0002	.0674	-.0173	-.0031	.0017	.0013	-.0109	.0248	-.0012
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0022**	**-.0010**	**.0036**	**-.0032**	**.0015**	**.0303**	**.0368**	**-.0432**	**.0165**
Stddev	.0002	.0003	.0008	.0000	.0039	.0189	.0122	.0155	.0193
%RSD	8.179	30.21	21.28	1.240	254.7	62.51	33.24	35.98	116.7
#1	-.0023	-.0008	.0041	-.0033	.0043	.0437	.0454	-.0322	.0029
#2	-.0020	-.0012	.0030	-.0032	-.0012	.0169	.0281	-.0542	.0302
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002**	**.0407**	**-.0096**	**.0018**	**.0065**	**-.0020**	**.0182**	**-.0051**	**.0565**
Stddev	.0000	.0111	.0001	.0007	.0075	.0005	.0003	.0021	.0283
%RSD	20.22	27.17	1.026	41.89	115.7	24.10	1.374	40.49	50.14
#1	.0002	.0329	-.0096	.0023	.0117	-.0017	.0181	-.0037	.0765
#2	.0003	.0485	-.0095	.0013	.0012	-.0024	.0184	-.0066	.0365
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/11/2017 16:21:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0157	-.0003	.0418	-.0038	-.0080	-.0049	.0010	-.0002	-.0098
Stddev	.0380	.0000	.0221	.0020	.0042	.0068	.0001	.0003	.0064
%RSD	242.3	8.366	52.87	52.08	52.08	137.0	12.15	194.1	64.97
#1	.0426	-.0004	.0261	-.0051	-.0110	-.0002	.0011	-.0004	-.0143
#2	-.0112	-.0003	.0574	-.0024	-.0051	-.0097	.0009	.0001	-.0053
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0006	-.0016	.0020
Stddev	.0020	.0009	.0013
%RSD	367.4	54.55	64.32
#1	-.0020	-.0022	.0029
#2	.0009	-.0010	.0011
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13275.
Stddev	224.
%RSD	1.6838
#1	13433.
#2	13117.

Sample Name: WG415942PBS Acquired: 1/11/2017 16:25:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.0327**	**-.0046**	**-.0067**	**.0037**	**.0014**	**-.0033**	**405.0**	**-.0005**
Stddev	.0026	.0103	.0150	.0005	.0000	.0002	.0282	1.3	.0005
%RSD	295.8	31.47	323.3	7.126	.8980	12.33	866.6	.3276	108.5
#1	.0010	.0400	.0060	-.0070	.0037	.0015	.0167	405.9	-.0001
#2	-.0027	.0254	-.0152	-.0063	.0036	.0013	-.0232	404.0	-.0008

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0019**	**-.0000**	**.0026**	**-.0091**	**-.0009**	**.0064**	**.0072**	**-.0197**	**.0119**
Stddev	.0001	.0023	.0005	.0002	.0022	.0031	.0001	.0238	.0187
%RSD	7.562	5992.	17.17	1.760	253.5	48.32	1.979	121.1	157.3
#1	-.0018	.0016	.0030	-.0090	-.0024	.0085	.0071	-.0028	-.0013
#2	-.0020	-.0017	.0023	-.0092	.0007	.0042	.0073	-.0365	.0252

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0036**	**.0783**	**-.0097**	**.0032**	**.1440**	**-.0006**	**.0731**	**.0003**	**.0619**
Stddev	.0011	.0242	.0002	.0010	.0023	.0011	.0038	.0181	.0231
%RSD	31.72	30.99	1.923	30.86	1.568	184.1	5.239	6418.	37.41
#1	.0044	.0611	-.0096	.0038	.1424	-.0014	.0758	-.0125	.0455
#2	.0028	.0954	-.0098	.0025	.1456	.0002	.0703	.0131	.0782

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0111**	**-.0005**	**.0419**	**-.0057**	**-.0123**	**-.0164**	**.0642**	**-.0019**	**.0066**
Stddev	.0121	.0001	.0278	.0019	.0040	.0015	.0002	.0006	.0239
%RSD	108.9	19.15	66.34	32.93	32.93	9.130	.3518	33.26	362.7
#1	-.0026	-.0005	.0615	-.0071	-.0151	-.0153	.0640	-.0023	-.0103
#2	-.0197	-.0006	.0222	-.0044	-.0094	-.0174	.0644	-.0014	.0235

Sample Name: WG415942PBS Acquired: 1/11/2017 16:25:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0035	.0016	.0033
Stddev	.0004	.0015	.0005
%RSD	10.80	92.80	15.47
#1	-.0032	.0027	.0036
#2	-.0037	.0006	.0029

Int. Std.	Y_3710
Units	Cts/S
Avg	13622.
Stddev	217.
%RSD	1.5918
#1	13775.
#2	13468.

Sample Name: L34445-01 Acquired: 1/11/2017 16:28:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	.2318	-.0272	.0032	.2677	.0014	-.0240	334.4	.0116
Stddev	.0002	.0016	.0094	.0062	.0016	.0001	.0167	.1	.0001
%RSD	145.0	.6826	34.58	195.3	.5864	8.117	69.66	.0323	1.155
#1	.0000	.2330	-.0206	.0076	.2665	.0015	-.0122	334.3	.0117
#2	-.0003	.2307	-.0339	-.0012	.2688	.0013	-.0358	334.5	.0115

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0110	-.0014	.0033	-.0047	.0049	.1082	.1171	-.0120	6.504
Stddev	.0007	.0027	.0014	.0058	.0005	.0071	.0009	.0102	.014
%RSD	6.158	190.0	42.37	123.0	11.29	6.525	.7401	84.89	.2133
#1	.0105	.0005	.0023	-.0088	.0045	.1132	.1177	-.0048	6.494
#2	.0114	-.0033	.0042	-.0006	.0053	.1032	.1165	-.0191	6.513

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0111	40.62	.0165	.0018	2.134	.0118	.2003	.0039	.4628
Stddev	.0000	.00	.0006	.0058	.014	.0024	.0157	.0082	.0086
%RSD	.2887	.0015	3.826	332.2	.6528	20.31	7.828	207.8	1.848
#1	.0111	40.62	.0161	-.0024	2.124	.0135	.1892	-.0018	.4567
#2	.0112	40.62	.0170	.0059	2.144	.0101	.2114	.0097	.4688

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010	-.0007	.0315	3.556	7.610	-.0090	.6224	.0084	.0246
Stddev	.0082	.0000	.0321	.017	.037	.0005	.0034	.0010	.0390
%RSD	799.9	3.385	101.8	.4886	.4886	5.079	.5447	12.01	158.8
#1	-.0048	-.0007	.0088	3.569	7.637	-.0087	.6200	.0077	.0522
#2	.0068	-.0007	.0542	3.544	7.584	-.0093	.6248	.0091	-.0030

Sample Name: L34445-01 Acquired: 1/11/2017 16:28:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0001	.0152	.0208
Stddev	.0002	.0006	.0009
%RSD	376.9	4.285	4.350
#1	.0002	.0156	.0215
#2	-.0001	.0147	.0202

Int. Std.	Y_3710
Units	Cts/S
Avg	13521.
Stddev	213.
%RSD	1.5738
#1	13671.
#2	13370.

Sample Name: L34445-02 Acquired: 1/11/2017 16:34:48 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0036	.1631	-.0145	.0498	.1084	.0013	.0023	403.0	-.0011
Stddev	.0024	.0053	.0257	.0044	.0002	.0000	.0124	1.5	.0001
%RSD	65.19	3.244	177.9	8.824	.1541	2.558	540.9	.3632	6.606
#1	-.0020	.1593	-.0327	.0467	.1083	.0013	.0111	404.0	-.0012
#2	-.0053	.1668	.0037	.0529	.1085	.0012	-.0065	401.9	-.0011

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0019	.0015	.0006	-.0054	.0018	.0679	.0697	-.0096	7.036
Stddev	.0016	.0017	.0015	.0006	.0002	.0076	.0018	.0564	.025
%RSD	82.38	112.2	249.8	11.19	10.76	11.22	2.623	586.2	.3585
#1	-.0030	.0027	-.0005	-.0059	.0019	.0733	.0710	-.0495	7.018
#2	-.0008	.0003	.0017	-.0050	.0017	.0626	.0684	.0303	7.054

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0157	8.700	.0004	.0013	1.213	.0004	.1567	-.0101	.3386
Stddev	.0002	.124	.0010	.0042	.000	.0018	.0317	.0032	.0249
%RSD	1.342	1.423	240.5	313.6	.0116	482.5	20.23	31.93	7.346
#1	.0155	8.788	-.0003	.0043	1.213	-.0009	.1342	-.0078	.3210
#2	.0158	8.613	.0011	-.0016	1.212	.0016	.1791	-.0124	.3562

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0103	-.0006	.0404	3.532	7.558	-.0036	.3943	.0036	.0173
Stddev	.0233	.0001	.0199	.019	.041	.0063	.0003	.0011	.0324
%RSD	226.5	22.53	49.31	.5466	.5466	172.7	.0725	29.65	187.0
#1	-.0062	-.0007	.0263	3.545	7.587	.0008	.3945	.0044	-.0056
#2	.0268	-.0005	.0544	3.518	7.529	-.0081	.3941	.0029	.0403

Sample Name: L34445-02 Acquired: 1/11/2017 16:34:48 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0028	-.0010	.0038
Stddev	.0022	.0008	.0011
%RSD	78.27	80.10	28.85
#1	.0043	-.0004	.0045
#2	.0012	-.0015	.0030

Int. Std.	Y_3710
Units	Cts/S
Avg	13284.
Stddev	301.
%RSD	2.2672
#1	13497.
#2	13071.

Sample Name: L34445-03 Acquired: 1/11/2017 16:37:59 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0013**	**.2293**	**-.0145**	**.0167**	**.2602**	**.0015**	**-.0122**	**348.5**	**.0013**
Stddev	.0029	.0072	.0007	.0004	.0020	.0000	.0104	1.6	.0010
%RSD	219.5	3.147	4.792	2.254	.7825	1.670	84.91	.4497	74.25
#1	.0033	.2344	-.0140	.0164	.2588	.0015	-.0196	347.4	.0006
#2	-.0007	.2242	-.0150	.0170	.2616	.0014	-.0049	349.6	.0020

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001**	**-.0001**	**.0023**	**-.0067**	**.0017**	**.1070**	**.1171**	**-.0073**	**7.666**
Stddev	.0011	.0023	.0028	.0004	.0020	.0007	.0008	.0111	.046
%RSD	842.4	1597.	120.2	5.251	119.0	.6969	.7168	152.7	.6028
#1	-.0007	.0015	.0004	-.0069	.0031	.1075	.1165	.0006	7.634
#2	.0009	-.0018	.0043	-.0064	.0003	.1065	.1177	-.0151	7.699

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0164**	**32.98**	**.0101**	**.0038**	**3.205**	**.0044**	**.1402**	**.0167**	**.4944**
Stddev	.0004	.03	.0004	.0010	.025	.0008	.0400	.0077	.0295
%RSD	2.140	.0839	4.038	25.58	.7938	17.70	28.51	46.02	5.970
#1	.0162	32.97	.0103	.0045	3.187	.0039	.1684	.0221	.4736
#2	.0167	33.00	.0098	.0031	3.223	.0050	.1119	.0112	.5153

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0139**	**-.0005**	**.0475**	**3.870**	**8.283**	**-.0127**	**.6702**	**.0095**	**.0152**
Stddev	.0062	.0001	.0088	.015	.033	.0065	.0059	.0008	.0047
%RSD	44.78	24.24	18.50	.3958	.3958	51.32	.8803	8.227	30.97
#1	-.0183	-.0006	.0413	3.881	8.306	-.0174	.6660	.0101	.0119
#2	-.0095	-.0004	.0538	3.860	8.259	-.0081	.6743	.0090	.0185

Sample Name: L34445-03 Acquired: 1/11/2017 16:37:59 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0019	.0041	.0071
Stddev	.0044	.0006	.0014
%RSD	239.7	14.41	19.28
#1	.0013	.0037	.0081
#2	-.0050	.0045	.0061

Int. Std.	Y_3710
Units	Cts/S
Avg	13477.
Stddev	277.
%RSD	2.0567
#1	13673.
#2	13281.

Sample Name: L34445-04 Acquired: 1/11/2017 16:41:11 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0020	.2340	-.0014	.0201	.1949	.0013	-.0035	318.1	.0034
Stddev	.0050	.0013	.0155	.0011	.0010	.0000	.0116	2.5	.0001
%RSD	248.7	.5606	1076.	5.482	.5062	2.001	332.6	.7949	4.071
#1	.0056	.2330	-.0124	.0193	.1956	.0013	-.0117	319.8	.0033
#2	-.0015	.2349	.0095	.0208	.1942	.0013	.0047	316.3	.0035

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0043	-.0025	.0051	-.0024	.0034	.1080	.1097	-.0284	9.516
Stddev	.0012	.0001	.0009	.0004	.0003	.0036	.0025	.0196	.007
%RSD	27.15	5.071	17.68	15.60	9.278	3.294	2.286	68.97	.0730
#1	.0051	-.0026	.0045	-.0021	.0036	.1055	.1115	-.0145	9.520
#2	.0035	-.0024	.0058	-.0026	.0032	.1106	.1080	-.0422	9.511

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0177	51.14	.0188	-.0007	1.557	.0016	.2965	-.0016	.2579
Stddev	.0003	.51	.0003	.0010	.002	.0048	.0025	.0039	.0102
%RSD	1.733	.9904	1.541	134.1	.1032	290.3	.8587	238.6	3.966
#1	.0179	51.50	.0186	-.0014	1.556	-.0017	.2947	.0011	.2507
#2	.0175	50.78	.0190	-.0000	1.558	.0050	.2983	-.0044	.2652

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0028	-.0008	.0367	4.750	10.17	-.0149	.5769	.0080	.0265
Stddev	.0232	.0000	.0096	.018	.04	.0141	.0017	.0008	.0078
%RSD	832.2	4.478	26.20	.3820	.3820	94.35	.2974	9.500	29.52
#1	-.0192	-.0008	.0434	4.763	10.19	-.0050	.5782	.0074	.0320
#2	.0136	-.0008	.0299	4.737	10.14	-.0249	.5757	.0085	.0210

Sample Name: L34445-04 Acquired: 1/11/2017 16:41:11 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0016	.0072	.0108
Stddev	.0028	.0032	.0012
%RSD	175.4	44.36	10.85
#1	-.0004	.0094	.0100
#2	.0036	.0049	.0117

Int. Std.	Y_3710
Units	Cts/S
Avg	13406.
Stddev	263.
%RSD	1.9636
#1	13592.
#2	13220.

Sample Name: L34674-01 Acquired: 1/11/2017 16:44:22 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0022	.3118	-.0040	.0350	.0562	.0014	-.0221	362.2	-.0002
Stddev	.0009	.0117	.0033	.0015	.0001	.0001	.0022	2.3	.0000
%RSD	43.54	3.765	83.59	4.361	.1714	3.808	9.823	.6347	28.01
#1	-.0015	.3201	-.0016	.0339	.0563	.0014	-.0236	363.8	-.0002
#2	-.0028	.3035	-.0063	.0361	.0562	.0014	-.0206	360.6	-.0001

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0015	-.0017	.0007	-.0025	.0078	.1498	.1562	-.0196	11.43
Stddev	.0001	.0004	.0031	.0044	.0040	.0084	.0036	.0054	.04
%RSD	3.870	22.67	474.0	178.4	51.28	5.616	2.311	27.60	.3303
#1	-.0015	-.0014	-.0016	-.0055	.0050	.1558	.1587	-.0234	11.41
#2	-.0016	-.0019	.0029	.0006	.0106	.1439	.1536	-.0158	11.46

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0165	24.29	.0286	-.0009	1.983	.0007	.1842	-.0226	.6367
Stddev	.0005	.21	.0003	.0013	.008	.0035	.0356	.0254	.0031
%RSD	3.320	.8573	1.144	150.1	.4186	501.0	19.35	112.3	.4893
#1	.0169	24.44	.0288	-.0019	1.977	.0032	.1590	-.0405	.6389
#2	.0162	24.14	.0283	.0001	1.988	-.0018	.2094	-.0047	.6345

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045	-.0007	.0317	3.655	7.822	-.0085	.6208	.0107	.0045
Stddev	.0030	.0001	.0134	.030	.063	.0093	.0004	.0004	.0047
%RSD	66.17	19.63	42.31	.8094	.8094	109.5	.0619	3.562	103.4
#1	.0066	-.0008	.0412	3.676	7.867	-.0150	.6205	.0104	.0078
#2	.0024	-.0006	.0222	3.634	7.777	-.0019	.6210	.0110	.0012

Sample Name: L34674-01 Acquired: 1/11/2017 16:44:22 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0020	.0013	.0058
Stddev	.0018	.0020	.0018
%RSD	92.12	156.2	30.45
#1	-.0033	.0027	.0045
#2	-.0007	-.0001	.0070

Int. Std.	Y_3710
Units	Cts/S
Avg	13617.
Stddev	200.
%RSD	1.4678
#1	13758.
#2	13476.

Sample Name: L34674-01AS Acquired: 1/11/2017 16:47:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4461	1.377	.9722	.5210	.5280	.4664	.9875	409.5	.4586
Stddev	.0037	.011	.0007	.0167	.0026	.0002	.0105	2.2	.0024
%RSD	.8193	.7727	.0682	3.200	.4915	.0494	1.066	.5493	.5279
#1	.4487	1.384	.9717	.5092	.5262	.4665	.9801	411.1	.4569
#2	.4435	1.369	.9727	.5328	.5299	.4662	.9950	407.9	.4603

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4592	.4628	.4800	.4739	.4869	1.155	1.171	.9647	106.1
Stddev	.0062	.0091	.0061	.0001	.0007	.009	.013	.0204	.3
%RSD	1.345	1.968	1.274	.0112	.1532	.7723	1.097	2.118	.3174
#1	.4548	.4564	.4757	.4739	.4874	1.161	1.180	.9503	105.9
#2	.4636	.4692	.4843	.4739	.4864	1.148	1.162	.9792	106.3

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9810	67.62	.5581	.4694	99.23	.4687	1.155	.9341	5.409
Stddev	.0049	.40	.0008	.0052	.24	.0036	.028	.0182	.101
%RSD	.4990	.5928	.1373	1.107	.2404	.7779	2.447	1.945	1.873
#1	.9775	67.90	.5587	.4658	99.06	.4662	1.135	.9212	5.337
#2	.9845	67.33	.5576	.4731	99.39	.4713	1.175	.9469	5.481

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.000	.9365	.9920	13.72	29.36	.9450	1.064	.9757	1.862
Stddev	.020	.0000	.0150	.06	.12	.0089	.002	.0031	.039
%RSD	1.008	.0001	1.513	.4079	.4079	.9471	.1868	.3132	2.072
#1	1.985	.9365	.9814	13.76	29.45	.9387	1.062	.9735	1.835
#2	2.014	.9365	1.003	13.68	29.28	.9513	1.065	.9779	1.889

Sample Name: L34674-01AS Acquired: 1/11/2017 16:47:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4749	.4603	.4871
Stddev	.0009	.0029	.0066
%RSD	.1953	.6226	1.346
#1	.4742	.4583	.4825
#2	.4755	.4624	.4917

Int. Std.	Y_3710
Units	Cts/S
Avg	13211.
Stddev	218.
%RSD	1.6526
#1	13365.
#2	13056.

Sample Name: L34674-01ASD Acquired: 1/11/2017 16:50:42 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4586	1.523	.9969	.5316	.5469	.4781	.9836	419.6	.4680
Stddev	.0049	.027	.0069	.0005	.0020	.0012	.0150	.9	.0051
%RSD	1.074	1.790	.6948	.0943	.3701	.2514	1.525	.2233	1.083
#1	.4621	1.543	1.002	.5313	.5455	.4789	.9730	420.3	.4644
#2	.4551	1.504	.9920	.5320	.5483	.4772	.9942	419.0	.4715

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4728	.4695	.4915	.4907	.4983	1.262	1.271	.9988	109.8
Stddev	.0063	.0108	.0049	.0021	.0023	.018	.004	.0465	.7
%RSD	1.326	2.295	.9898	.4295	.4606	1.448	.3193	4.660	.5994
#1	.4684	.4618	.4881	.4892	.4999	1.275	1.274	1.032	109.3
#2	.4772	.4771	.4950	.4922	.4967	1.249	1.268	.9659	110.2

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.000	69.13	.6186	.4798	101.8	.4835	1.237	.9625	5.540
Stddev	.001	.36	.0051	.0030	.1	.0105	.023	.0094	.051
%RSD	.0983	.5192	.8178	.6301	.1464	2.174	1.844	.9798	.9266
#1	.9996	69.38	.6150	.4777	101.7	.4761	1.253	.9692	5.503
#2	1.001	68.88	.6222	.4820	101.9	.4910	1.221	.9559	5.576

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.085	.9684	1.021	14.36	30.73	.9273	1.094	.9910	1.909
Stddev	.014	.0030	.015	.17	.36	.0130	.002	.0021	.057
%RSD	.6584	.3118	1.440	1.169	1.169	1.406	.1630	.2142	2.998
#1	2.095	.9705	1.011	14.48	30.99	.9180	1.092	.9926	1.868
#2	2.075	.9663	1.032	14.24	30.48	.9365	1.095	.9895	1.949

Sample Name: L34674-01ASD Acquired: 1/11/2017 16:50:42 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4911	.4743	.4981
Stddev	.0055	.0082	.0040
%RSD	1.114	1.724	.7943
#1	.4872	.4686	.4953
#2	.4949	.4801	.5009

Int. Std.	Y_3710
Units	Cts/S
Avg	13087.
Stddev	209.
%RSD	1.5981
#1	13235.
#2	12939.

Sample Name: L34674-02 Acquired: 1/11/2017 16:53:50 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0015	.2718	-.0257	.0400	.0546	.0017	.0076	349.2	-.0008
Stddev	.0039	.0074	.0082	.0013	.0005	.0001	.0021	4.3	.0007
%RSD	255.2	2.717	31.79	3.126	.9371	5.083	28.07	1.220	78.26
#1	.0012	.2770	-.0200	.0409	.0549	.0017	.0091	352.2	-.0013
#2	-.0043	.2666	-.0315	.0391	.0542	.0016	.0061	346.2	-.0004

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0020	-.0015	.0032	-.0024	.0040	.1160	.1211	-.0331	16.24
Stddev	.0006	.0001	.0015	.0000	.0042	.0099	.0044	.0280	.05
%RSD	29.59	6.241	48.22	1.690	103.7	8.500	3.647	84.71	.3036
#1	-.0016	-.0014	.0042	-.0025	.0069	.1229	.1243	-.0529	16.28
#2	-.0024	-.0015	.0021	-.0024	.0011	.1090	.1180	-.0133	16.21

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0220	32.43	.0807	.0012	1.502	-.0009	.1234	-.0073	.3155
Stddev	.0005	.45	.0019	.0019	.024	.0038	.0037	.0027	.0269
%RSD	2.386	1.395	2.333	157.8	1.609	434.2	2.977	36.89	8.528
#1	.0224	32.75	.0820	-.0001	1.519	.0018	.1260	-.0092	.2965
#2	.0217	32.11	.0793	.0026	1.485	-.0036	.1208	-.0054	.3345

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0223	.0002	.0092	4.916	10.52	-.0117	.6664	.0077	.0160
Stddev	.0060	.0000	.0159	.086	.18	.0081	.0039	.0004	.0429
%RSD	26.91	5.502	173.5	1.754	1.754	69.48	.5900	4.905	268.3
#1	.0266	.0002	-.0021	4.977	10.65	-.0174	.6692	.0080	.0463
#2	.0181	.0002	.0205	4.855	10.39	-.0059	.6637	.0075	-.0143

Sample Name: L34674-02 Acquired: 1/11/2017 16:53:50 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0004	.0054	.0081
Stddev	.0018	.0014	.0018
%RSD	431.2	25.83	21.54
#1	.0008	.0044	.0069
#2	-.0017	.0064	.0094

Int. Std.	Y_3710
Units	Cts/S
Avg	13235.
Stddev	19.
%RSD	.14020
#1	13248.
#2	13221.

Sample Name: CCV Acquired: 1/11/2017 16:57:02 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4937	1.018	1.989	1.017	.9903	1.024	.9888	50.90	1.001
Stddev	.0021	.003	.030	.010	.0055	.006	.0020	.10	.007
%RSD	.4190	.3129	1.498	1.000	.5529	.5458	.2051	.1972	.6789
#1	.4922	1.015	1.967	1.010	.9864	1.020	.9874	50.83	.9963
#2	.4951	1.020	2.010	1.024	.9942	1.028	.9903	50.97	1.006
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.009	.9748	.9936	.9901	1.008	.9955	1.004	.9957	9.823
Stddev	.010	.0150	.0148	.0023	.006	.0144	.005	.0342	.071
%RSD	1.012	1.535	1.486	.2330	.6468	1.451	.5527	3.437	.7280
#1	1.002	.9642	.9831	.9885	1.004	.9852	1.000	.9715	9.772
#2	1.016	.9854	1.004	.9917	1.013	1.006	1.008	1.020	9.873
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9835	50.97	.9912	1.030	50.42	1.035	2.666	1.932	25.33
Stddev	.0046	.04	.0048	.014	.29	.005	.024	.009	.31
%RSD	.4660	.0750	.4820	1.400	.5846	.5147	.8960	.4396	1.206
#1	.9803	51.00	.9879	1.020	50.21	1.031	2.649	1.926	25.11
#2	.9867	50.94	.9946	1.041	50.63	1.038	2.683	1.938	25.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 16:57:02 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.076	1.004	2.061	9.777	F 20.92	1.036	.9983	1.013	1.973
Stddev	.008	.003	.048	.005	.01	.012	.0066	.009	.039
%RSD	.4017	.3168	2.310	.0526	.0526	1.181	.6619	.8483	1.971
#1	2.070	1.002	2.027	9.773	20.91	1.027	.9936	1.007	1.945
#2	2.082	1.007	2.095	9.781	20.93	1.044	1.003	1.019	2.000
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.024	.9966	.9921
Stddev	.006	.0104	.0111
%RSD	.5961	1.046	1.120
#1	1.020	.9892	.9842
#2	1.029	1.004	.9999
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13209.
Stddev	152.
%RSD	1.1477
#1	13316.
#2	13101.

Sample Name: L34674-03 Acquired: 1/11/2017 17:03:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0002**	**.3101**	**-.0038**	**.0131**	**.3584**	**.0014**	**-.0098**	**346.0**	**.0023**
Stddev	.0019	.0041	.0212	.0030	.0038	.0002	.0075	1.6	.0001
%RSD	1187.	1.321	562.0	23.14	1.070	14.90	75.69	.4593	3.081
#1	.0012	.3130	.0112	.0152	.3556	.0016	-.0046	344.8	.0023
#2	-.0015	.3072	-.0188	.0109	.3611	.0013	-.0151	347.1	.0024

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009**	**.0012**	**.0030**	**-.0071**	**.0048**	**.1385**	**.1440**	**-.0311**	**20.02**
Stddev	.0005	.0005	.0017	.0001	.0031	.0056	.0011	.0347	.25
%RSD	58.25	45.39	58.65	.8666	63.67	4.008	.7495	111.6	1.266
#1	.0005	.0015	.0042	-.0071	.0070	.1346	.1432	-.0065	19.84
#2	.0013	.0008	.0017	-.0070	.0027	.1425	.1447	-.0556	20.20

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0513**	**33.39**	**.1321**	**.0042**	**3.087**	**.0057**	**.1531**	**-.0037**	**.8970**
Stddev	.0009	.15	.0003	.0002	.038	.0021	.0240	.0041	.0012
%RSD	1.777	.4414	.2437	5.913	1.242	36.36	15.65	110.1	.1310
#1	.0507	33.29	.1319	.0044	3.059	.0042	.1700	-.0066	.8962
#2	.0519	33.49	.1324	.0040	3.114	.0071	.1361	-.0008	.8978

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0031**	**-.0005**	**.0324**	**10.02**	**21.44**	**-.0059**	**.9045**	**.0116**	**.0144**
Stddev	.0099	.0002	.0102	.00	.00	.0076	.0097	.0013	.0058
%RSD	323.4	41.90	31.40	.0096	.0096	129.2	1.067	11.10	40.50
#1	.0039	-.0004	.0252	10.02	21.44	-.0005	.8976	.0125	.0103
#2	-.0101	-.0007	.0396	10.02	21.45	-.0113	.9113	.0107	.0185

Sample Name: L34674-03 Acquired: 1/11/2017 17:03:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0009	.0784	.0835
Stddev	.0025	.0016	.0027
%RSD	281.0	2.096	3.201
#1	-.0009	.0772	.0816
#2	.0027	.0795	.0854

Int. Std.	Y_3710
Units	Cts/S
Avg	13247.
Stddev	237.
%RSD	1.7899
#1	13415.
#2	13080.

Sample Name: L34674-04 Acquired: 1/11/2017 17:06:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0028**	**.2342**	**-.0379**	**.0008**	**.5778**	**.0015**	**-.0063**	**346.7**	**.0014**
Stddev	.0010	.0076	.0036	.0017	.0004	.0000	.0099	2.3	.0008
%RSD	36.40	3.261	9.589	217.2	.0631	1.743	156.4	.6729	54.17
#1	.0035	.2288	-.0354	.0020	.5776	.0015	.0007	348.4	.0009
#2	.0020	.2396	-.0405	-.0004	.5781	.0016	-.0133	345.1	.0019

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0017**	**-.0010**	**.0006**	**-.0007**	**.0027**	**.0906**	**.0967**	**-.0151**	**9.912**
Stddev	.0001	.0017	.0042	.0056	.0009	.0095	.0043	.0031	.051
%RSD	4.200	158.8	761.1	853.0	32.77	10.48	4.412	20.36	.5118
#1	.0017	-.0022	.0035	-.0047	.0021	.0973	.0998	-.0173	9.948
#2	.0016	.0001	-.0024	.0033	.0033	.0839	.0937	-.0130	9.876

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0467**	**30.42**	**.4728**	**.0060**	**3.581**	**.0131**	**.1000**	**.0013**	**1.498**
Stddev	.0007	.21	.0001	.0033	.000	.0025	.0217	.0015	.020
%RSD	1.425	.6803	.0126	54.93	.0051	19.46	21.70	113.4	1.337
#1	.0472	30.57	.4728	.0083	3.581	.0149	.0846	.0003	1.483
#2	.0463	30.27	.4727	.0036	3.581	.0113	.1153	.0024	1.512

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008**	**-.0007**	**.0337**	**6.112**	**13.08**	**.0023**	**.7757**	**.0065**	**.0146**
Stddev	.0313	.0001	.0160	.047	.10	.0002	.0001	.0009	.0216
%RSD	4119.	10.30	47.45	.7708	.7708	7.348	.0190	13.62	147.9
#1	-.0214	-.0007	.0450	6.146	13.15	.0022	.7756	.0071	-.0007
#2	.0229	-.0008	.0224	6.079	13.01	.0025	.7758	.0058	.0299

Sample Name: L34674-04 Acquired: 1/11/2017 17:06:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0017	.3384	.3512
Stddev	.0035	.0000	.0000
%RSD	209.0	.0082	.0112
#1	-.0008	.3384	.3512
#2	.0041	.3383	.3513

Int. Std.	Y_3710
Units	Cts/S
Avg	13577.
Stddev	158.
%RSD	1.1648
#1	13688.
#2	13465.

Sample Name: L34674-04SDL Acquired: 1/11/2017 17:09:47 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0012**	**.0785**	**-.0070**	**.0026**	**.1151**	**.0013**	**-.0067**	**68.30**	**-.0007**
Stddev	.0021	.0107	.0240	.0002	.0006	.0001	.0095	.57	.0002
%RSD	176.0	13.67	342.8	7.835	.5030	6.310	140.8	.8344	33.06
#1	.0003	.0709	-.0240	.0028	.1155	.0013	-.0000	68.70	-.0009
#2	-.0026	.0861	.0100	.0025	.1147	.0012	-.0134	67.89	-.0006

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0014**	**.0017**	**-.0000**	**-.0077**	**.0029**	**.0343**	**.0405**	**.0078**	**1.933**
Stddev	.0014	.0012	.0007	.0007	.0018	.0005	.0013	.0219	.011
%RSD	99.38	70.75	1691.	9.710	62.87	1.431	3.250	280.0	.5822
#1	-.0004	.0009	.0005	-.0082	.0016	.0340	.0396	-.0076	1.941
#2	-.0025	.0026	-.0006	-.0072	.0041	.0347	.0415	.0233	1.925

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0095**	**5.949**	**.0867**	**.0014**	**.6886**	**.0017**	**.0722**	**-.0069**	**.3504**
Stddev	.0001	.029	.0002	.0004	.0077	.0007	.0611	.0085	.0264
%RSD	1.417	.4814	.1863	28.96	1.115	41.24	84.67	123.6	7.526
#1	.0094	5.969	.0868	.0017	.6832	.0021	.1154	-.0129	.3318
#2	.0096	5.928	.0866	.0011	.6940	.0012	.0290	-.0009	.3691

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0007**	**-.0005**	**.0458**	**1.306**	**2.795**	**-.0111**	**.1537**	**.0050**	**.0307**
Stddev	.0080	.0002	.0205	.003	.007	.0056	.0006	.0009	.0176
%RSD	1216.	28.28	44.67	.2511	.2511	50.33	.3708	18.30	57.19
#1	-.0050	-.0004	.0314	1.304	2.790	-.0071	.1541	.0056	.0431
#2	.0063	-.0006	.0603	1.308	2.800	-.0150	.1533	.0043	.0183

Sample Name: L34674-04SDL Acquired: 1/11/2017 17:09:47 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0036	.0676	.0704
Stddev	.0010	.0010	.0022
%RSD	27.14	1.441	3.098
#1	-.0043	.0683	.0688
#2	-.0029	.0669	.0719

Int. Std.	Y_3710
Units	Cts/S
Avg	13256.
Stddev	152.
%RSD	1.1487
#1	13363.
#2	13148.

Sample Name: L34674-05 Acquired: 1/11/2017 17:12:59 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	.2954	-.0142	.0136	.2095	.0015	-.0166	366.6	.0058
Stddev	.0039	.0033	.0165	.0021	.0001	.0001	.0186	2.4	.0002
%RSD	1795.	1.111	115.9	15.35	.0607	6.514	112.3	.6554	2.619
#1	-.0030	.2931	-.0026	.0122	.2094	.0014	-.0034	368.3	.0057
#2	.0025	.2977	-.0259	.0151	.2096	.0016	-.0297	364.9	.0059

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033	-.0016	.0107	.0047	.0047	.1558	.1543	-.0322	8.428
Stddev	.0001	.0007	.0005	.0042	.0028	.0132	.0055	.0159	.032
%RSD	4.526	42.01	4.983	89.75	59.55	8.472	3.564	49.46	.3735
#1	.0034	-.0021	.0103	.0017	.0027	.1651	.1582	-.0434	8.450
#2	.0032	-.0011	.0110	.0077	.0067	.1464	.1504	-.0209	8.405

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0117	24.89	.1627	.0037	1.761	.0287	.2567	-.0048	.6636
Stddev	.0001	.17	.0002	.0008	.007	.0002	.0055	.0023	.0003
%RSD	.6385	.6896	.1067	22.07	.4264	.7047	2.150	46.86	.0489
#1	.0117	25.01	.1628	.0032	1.756	.0286	.2528	-.0032	.6638
#2	.0118	24.76	.1626	.0043	1.767	.0289	.2606	-.0064	.6634

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0025	-.0004	.0378	2.837	6.071	-.0102	.7683	.0136	.0056
Stddev	.0060	.0001	.0216	.058	.124	.0018	.0008	.0015	.0031
%RSD	238.8	23.40	57.15	2.044	2.044	18.02	.1000	11.25	55.80
#1	.0068	-.0005	.0225	2.878	6.159	-.0115	.7677	.0125	.0034
#2	-.0017	-.0003	.0531	2.796	5.983	-.0089	.7688	.0146	.0078

Sample Name: L34674-05 Acquired: 1/11/2017 17:12:59 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0040	.0349	.0386
Stddev	.0010	.0014	.0006
%RSD	25.86	3.886	1.594
#1	.0033	.0340	.0391
#2	.0047	.0359	.0382

Int. Std.	Y_3710
Units	Cts/S
Avg	13651.
Stddev	220.
%RSD	1.6148
#1	13807.
#2	13495.

Sample Name: L34674-06 Acquired: 1/11/2017 17:16:11 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003	.5421	-.0061	.0117	.2543	.0014	-.0156	380.1	.0097
Stddev	.0003	.0091	.0244	.0043	.0011	.0003	.0270	.9	.0001
%RSD	81.45	1.688	402.2	36.28	.4209	18.27	172.3	.2282	1.180
#1	.0005	.5485	-.0233	.0087	.2536	.0016	-.0347	379.4	.0096
#2	.0001	.5356	.0112	.0147	.2551	.0012	.0034	380.7	.0098

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0093	.0016	.0061	.0005	.0073	.2596	.2692	-.0163	8.113
Stddev	.0004	.0012	.0011	.0034	.0005	.0009	.0018	.0150	.124
%RSD	3.929	70.44	18.16	647.1	6.883	.3412	.6808	91.80	1.530
#1	.0096	.0025	.0053	-.0019	.0077	.2602	.2679	-.0057	8.026
#2	.0090	.0008	.0069	.0029	.0070	.2590	.2705	-.0269	8.201

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0236	17.92	.2693	.0038	1.526	.0323	.3512	-.0164	1.361
Stddev	.0009	.07	.0002	.0020	.004	.0020	.0618	.0061	.062
%RSD	3.882	.3950	.0697	54.20	.2720	6.327	17.59	37.14	4.543
#1	.0243	17.87	.2694	.0023	1.523	.0309	.3076	-.0207	1.317
#2	.0230	17.97	.2691	.0052	1.529	.0338	.3949	-.0121	1.405

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019	-.0005	.0323	4.035	8.634	-.0071	.6907	.0204	.0055
Stddev	.0062	.0000	.0204	.004	.009	.0165	.0032	.0007	.0230
%RSD	328.3	.8830	63.11	.1096	.1096	232.3	.4607	3.657	421.8
#1	.0063	-.0005	.0179	4.038	8.641	.0046	.6884	.0198	.0217
#2	-.0025	-.0005	.0468	4.031	8.627	-.0188	.6929	.0209	-.0108

Sample Name: L34674-06 Acquired: 1/11/2017 17:16:11 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0013	.2218	.2293
Stddev	.0040	.0020	.0044
%RSD	300.0	.8993	1.926
#1	.0041	.2232	.2262
#2	-.0015	.2204	.2325

Int. Std.	Y_3710
Units	Cts/S
Avg	13370.
Stddev	350.
%RSD	2.6170
#1	13618.
#2	13123.

Sample Name: L34674-07 Acquired: 1/11/2017 17:19:21 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0007	.2135	-.0283	.0210	.0344	.0015	.0090	269.7	-.0016
Stddev	.0015	.0134	.0087	.0035	.0003	.0000	.0369	3.2	.0005
%RSD	230.4	6.287	30.86	16.78	.7703	.2166	408.8	1.170	31.39
#1	-.0018	.2230	-.0345	.0185	.0346	.0015	-.0171	271.9	-.0012
#2	.0004	.2040	-.0221	.0234	.0342	.0015	.0352	267.4	-.0020

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0016	.0004	.0028	-.0033	.0048	.1072	.1113	-.0568	4.675
Stddev	.0007	.0011	.0014	.0012	.0057	.0083	.0074	.0161	.014
%RSD	44.28	286.9	49.75	35.86	117.9	7.707	6.690	28.32	.2891
#1	-.0021	-.0004	.0038	-.0025	.0089	.1130	.1165	-.0682	4.665
#2	-.0011	.0012	.0018	-.0041	.0008	.1014	.1060	-.0455	4.685

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0298	79.33	.0195	.0063	3.545	.0009	.0900	-.0047	.3128
Stddev	.0008	1.03	.0007	.0007	.028	.0041	.0211	.0107	.0064
%RSD	2.734	1.296	3.591	11.55	.8006	445.4	23.50	225.3	2.050
#1	.0304	80.06	.0200	.0069	3.565	.0038	.1049	-.0123	.3174
#2	.0293	78.60	.0190	.0058	3.525	-.0020	.0750	.0028	.3083

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005	-.0008	.0111	8.002	17.12	-.0122	.6248	.0077	.0221
Stddev	.0147	.0003	.0146	.163	.35	.0091	.0048	.0005	.0140
%RSD	2728.	32.36	131.6	2.040	2.040	74.71	.7645	5.958	63.53
#1	.0109	-.0007	.0215	8.117	17.37	-.0058	.6282	.0080	.0320
#2	-.0098	-.0010	.0008	7.886	16.88	-.0187	.6214	.0074	.0122

Sample Name: L34674-07 Acquired: 1/11/2017 17:19:21 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0010	.0064	.0094
Stddev	.0020	.0014	.0006
%RSD	204.5	21.36	6.712
#1	.0004	.0074	.0098
#2	-.0024	.0054	.0089

Int. Std.	Y_3710
Units	Cts/S
Avg	13592.
Stddev	76.
%RSD	.55769
#1	13646.
#2	13538.

Sample Name: L34674-08 Acquired: 1/11/2017 17:22:32 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012	.2091	-.0173	.0070	.1513	.0014	.0061	338.7	.0006
Stddev	.0007	.0169	.0261	.0037	.0003	.0000	.0165	.5	.0015
%RSD	62.21	8.088	150.6	53.18	.2281	1.009	272.6	.1412	243.4
#1	.0007	.2210	-.0357	.0044	.1510	.0014	-.0056	339.0	-.0004
#2	.0017	.1971	.0011	.0096	.1515	.0014	.0177	338.3	.0016

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0020	-.0021	.0026	-.0044	.0046	.0986	.1038	.0065	7.915
Stddev	.0008	.0006	.0014	.0031	.0017	.0080	.0006	.0181	.013
%RSD	38.94	30.82	52.26	69.91	37.04	8.081	.6013	278.6	.1623
#1	-.0015	-.0016	.0016	-.0022	.0058	.1042	.1042	.0193	7.906
#2	-.0026	-.0026	.0036	-.0066	.0034	.0930	.1033	-.0063	7.924

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0265	41.72	.0087	.0010	4.541	.0008	.0711	.0065	1.527
Stddev	.0002	.16	.0008	.0015	.021	.0039	.0066	.0081	.010
%RSD	.8868	.3759	9.637	142.3	.4696	486.4	9.342	123.7	.6468
#1	.0267	41.83	.0093	-.0000	4.526	-.0020	.0664	.0123	1.520
#2	.0263	41.61	.0081	.0021	4.556	.0036	.0758	.0008	1.534

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009	-.0009	.0345	5.577	11.93	-.0112	.4308	.0074	-.0031
Stddev	.0020	.0001	.0041	.006	.01	.0137	.0010	.0000	.0069
%RSD	219.7	16.10	11.80	.1096	.1096	122.3	.2237	.3792	219.8
#1	-.0005	-.0008	.0316	5.581	11.94	-.0208	.4301	.0073	-.0080
#2	.0023	-.0010	.0373	5.572	11.92	-.0015	.4314	.0074	.0017

Sample Name: L34674-08 Acquired: 1/11/2017 17:22:32 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0019	.0109	.0150
Stddev	.0008	.0018	.0003
%RSD	41.17	16.47	1.902
#1	-.0013	.0122	.0148
#2	-.0024	.0096	.0152

Int. Std.	Y_3710
Units	Cts/S
Avg	13362.
Stddev	188.
%RSD	1.4106
#1	13495.
#2	13228.

Sample Name: L34674-09 Acquired: 1/11/2017 17:25:43 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0006	.1882	-.0284	.0250	.2148	.0016	-.0173	365.9	.0001
Stddev	.0004	.0108	.0061	.0022	.0016	.0001	.0008	.8	.0005
%RSD	59.15	5.725	21.51	8.907	.7600	6.431	4.393	.2190	600.0
#1	-.0009	.1958	-.0241	.0234	.2137	.0017	-.0178	365.3	-.0003
#2	-.0004	.1805	-.0327	.0266	.2160	.0015	-.0168	366.4	.0004

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0007	.0016	.0035	-.0014	.0055	.1086	.1164	-.0058	6.036
Stddev	.0010	.0001	.0017	.0002	.0008	.0049	.0001	.0098	.065
%RSD	135.6	6.509	47.48	13.98	14.58	4.492	.0527	168.9	1.075
#1	-.0000	.0015	.0023	-.0012	.0049	.1120	.1163	-.0127	5.990
#2	-.0015	.0017	.0047	-.0015	.0061	.1051	.1164	.0011	6.082

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0203	18.51	.2363	-.0002	3.908	.0534	.1428	-.0246	.4087
Stddev	.0005	.04	.0018	.0012	.018	.0065	.0032	.0065	.0363
%RSD	2.304	.2243	.7695	578.1	.4704	12.11	2.233	26.55	8.888
#1	.0199	18.48	.2350	-.0010	3.895	.0489	.1451	-.0292	.3830
#2	.0206	18.54	.2376	.0006	3.921	.0580	.1405	-.0199	.4343

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060	-.0007	.0335	4.483	9.594	-.0172	.5722	.0054	-.0064
Stddev	.0089	.0001	.0125	.043	.091	.0087	.0034	.0009	.0182
%RSD	149.3	7.922	37.32	.9496	.9496	50.84	.5872	16.32	286.5
#1	-.0003	-.0006	.0247	4.513	9.658	-.0234	.5698	.0048	-.0193
#2	.0123	-.0007	.0424	4.453	9.530	-.0110	.5745	.0060	.0065

Sample Name: L34674-09 Acquired: 1/11/2017 17:25:43 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0001	.0719	.0818
Stddev	.0012	.0026	.0014
%RSD	997.8	3.654	1.681
#1	.0007	.0700	.0828
#2	-.0010	.0738	.0808

Int. Std.	Y_3710
Units	Cts/S
Avg	13652.
Stddev	234.
%RSD	1.7164
#1	13817.
#2	13486.

Sample Name: L34674-10 Acquired: 1/11/2017 17:28:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0003**	**.2597**	**-.0168**	**.0379**	**.1966**	**.0015**	**-.0127**	**379.7**	**.0012**
Stddev	.0017	.0079	.0120	.0037	.0008	.0004	.0037	3.2	.0008
%RSD	503.7	3.048	71.75	9.788	.3976	29.11	29.44	.8425	68.05
#1	.0008	.2541	-.0253	.0353	.1972	.0018	-.0101	382.0	.0017
#2	-.0015	.2653	-.0083	.0405	.1961	.0012	-.0154	377.4	.0006

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**.0060**	**.0066**	**.0011**	**.0054**	**.1428**	**.1480**	**-.0304**	**5.455**
Stddev	.0005	.0003	.0009	.0049	.0008	.0073	.0013	.0191	.004
%RSD	110.4	5.001	13.37	457.6	15.48	5.106	.8769	62.79	.0790
#1	-.0008	.0063	.0060	.0046	.0048	.1479	.1471	-.0169	5.451
#2	-.0001	.0058	.0073	-.0024	.0060	.1376	.1489	-.0439	5.458

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0169**	**12.82**	**.3947**	**.0025**	**2.601**	**.0584**	**.1017**	**-.0016**	**.6742**
Stddev	.0004	.14	.0010	.0002	.007	.0031	.0288	.0079	.0047
%RSD	2.405	1.105	.2415	8.828	.2671	5.313	28.36	485.3	.6910
#1	.0172	12.92	.3954	.0024	2.596	.0562	.1221	-.0072	.6709
#2	.0166	12.72	.3940	.0027	2.606	.0606	.0813	.0039	.6775

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0045**	**-.0004**	**.0257**	**3.407**	**7.292**	**-.0159**	**.3673**	**.0088**	**.0230**
Stddev	.0097	.0000	.0171	.002	.005	.0049	.0002	.0006	.0019
%RSD	215.9	6.231	66.66	.0714	.0714	30.77	.0421	6.811	8.424
#1	-.0024	-.0003	.0377	3.409	7.295	-.0194	.3674	.0093	.0216
#2	.0114	-.0004	.0136	3.406	7.288	-.0125	.3672	.0084	.0243

Sample Name: L34674-10 Acquired: 1/11/2017 17:28:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0008	.1761	.1838
Stddev	.0028	.0016	.0036
%RSD	333.8	.8812	1.980
#1	-.0029	.1750	.1813
#2	.0012	.1772	.1864

Int. Std.	Y_3710
Units	Cts/S
Avg	13533.
Stddev	240.
%RSD	1.7770
#1	13703.
#2	13363.

Sample Name: L34674-14 Acquired: 1/11/2017 17:32:04 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014	.2916	-.0095	.0181	.3620	.0016	-.0064	346.2	.0028
Stddev	.0002	.0058	.0125	.0012	.0020	.0001	.0056	.8	.0002
%RSD	18.43	1.986	131.7	6.859	.5632	9.012	87.13	.2316	6.402
#1	.0015	.2957	-.0007	.0190	.3606	.0017	-.0104	346.8	.0030
#2	.0012	.2875	-.0183	.0172	.3634	.0015	-.0025	345.6	.0027

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014	.0005	.0041	-.0021	.0025	.1352	.1371	-.0039	20.01
Stddev	.0013	.0029	.0010	.0028	.0009	.0014	.0016	.0270	.21
%RSD	94.03	533.5	24.66	133.3	34.69	1.054	1.146	696.6	1.055
#1	.0024	.0026	.0034	-.0001	.0032	.1342	.1360	.0152	19.86
#2	.0005	-.0015	.0048	-.0041	.0019	.1362	.1383	-.0229	20.16

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0728	32.11	.3181	.0044	3.219	.0062	.1186	.0082	.9452
Stddev	.0010	.12	.0007	.0018	.024	.0003	.0201	.0130	.0120
%RSD	1.366	.3616	.2076	40.55	.7361	4.120	16.98	159.3	1.266
#1	.0721	32.19	.3176	.0031	3.202	.0063	.1328	-.0010	.9537
#2	.0735	32.02	.3186	.0057	3.236	.0060	.1044	.0173	.9367

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007	-.0007	.0278	8.792	18.82	-.0033	.8786	.0105	.0223
Stddev	.0105	.0000	.0052	.008	.02	.0015	.0038	.0005	.0045
%RSD	1472.	6.780	18.64	.0887	.0887	45.84	.4321	5.040	20.32
#1	.0082	-.0006	.0314	8.787	18.80	-.0022	.8759	.0109	.0191
#2	-.0067	-.0007	.0241	8.798	18.83	-.0044	.8812	.0101	.0255

Sample Name: L34674-14 Acquired: 1/11/2017 17:32:04 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0024	.1790	.1889
Stddev	.0003	.0010	.0032
%RSD	10.96	.5428	1.685
#1	-.0025	.1783	.1866
#2	-.0022	.1797	.1911

Int. Std.	Y_3710
Units	Cts/S
Avg	13605.
Stddev	195.
%RSD	1.4334
#1	13743.
#2	13467.

Sample Name: CCV Acquired: 1/11/2017 17:35:16 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4795	.9811	1.975	.9742	.9638	.9989	.9474	49.39	.9725
Stddev	.0002	.0041	.032	.0095	.0047	.0035	.0134	.01	.0111
%RSD	.0484	.4146	1.631	.9758	.4854	.3474	1.414	.0159	1.145
#1	.4797	.9839	1.952	.9675	.9605	.9964	.9379	49.39	.9647
#2	.4793	.9782	1.998	.9809	.9671	1.001	.9569	49.40	.9804
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9813	.9464	.9638	.9609	.9940	.9606	.9725	.9339	9.518
Stddev	.0108	.0075	.0091	.0010	.0073	.0009	.0018	.0054	.037
%RSD	1.101	.7944	.9439	.1041	.7364	.0953	.1839	.5774	.3864
#1	.9736	.9411	.9574	.9616	.9888	.9613	.9712	.9377	9.492
#2	.9889	.9518	.9702	.9602	.9992	.9600	.9738	.9301	9.544
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9499	49.67	.9630	1.007	49.40	1.000	2.591	1.899	24.34
Stddev	.0044	.08	.0011	.013	.28	.017	.039	.016	.22
%RSD	.4627	.1693	.1162	1.266	.5691	1.663	1.491	.8316	.8923
#1	.9468	49.61	.9622	.9976	49.20	.9883	2.564	1.888	24.19
#2	.9530	49.73	.9638	1.016	49.59	1.012	2.619	1.910	24.50
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 17:35:16 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.002	.9777	2.002	9.521	F 20.38	1.009	.9685	.9838	1.977
Stddev	.031	.0030	.061	.022	.05	.012	.0046	.0005	.037
%RSD	1.543	.3081	3.060	.2337	.2337	1.162	.4793	.0528	1.896
#1	1.980	.9755	2.045	9.506	20.34	1.001	.9653	.9834	1.951
#2	2.024	.9798	1.959	9.537	20.41	1.018	.9718	.9841	2.004
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.001	.9702	.9609
Stddev	.002	.0144	.0101
%RSD	.1868	1.481	1.052
#1	.9996	.9601	.9537
#2	1.002	.9804	.9680
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13481.
Stddev	187.
%RSD	1.3891
#1	13613.
#2	13348.

Sample Name: CCB Acquired: 1/11/2017 17:38:25 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0018**	**-.0130**	**-.0333**	**-.0012**	**.0021**	**.0020**	**-.0076**	**.0521**	**-.0007**
Stddev	.0015	.0048	.0214	.0030	.0003	.0002	.0109	.0075	.0002
%RSD	86.38	36.85	64.39	242.2	13.44	10.71	143.2	14.39	29.71
#1	-.0029	-.0096	-.0485	.0009	.0023	.0022	.0001	.0574	-.0005
#2	-.0007	-.0163	-.0181	-.0034	.0019	.0019	-.0153	.0468	-.0008
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**-.0036**	**.0024**	**-.0038**	**-.0000**	**-.0024**	**-.0043**	**.0027**	**.0453**
Stddev	.0010	.0023	.0011	.0015	.0032	.0021	.0021	.0205	.0242
%RSD	85.68	62.78	46.09	40.50	8916.	89.25	49.35	754.8	53.44
#1	-.0018	-.0052	.0031	-.0027	-.0023	-.0009	-.0028	.0172	.0282
#2	-.0004	-.0020	.0016	-.0049	.0022	-.0039	-.0059	-.0118	.0624
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0006**	**.0136**	**-.0071**	**.0030**	**.0499**	**-.0010**	**.0468**	**-.0144**	**.0618**
Stddev	.0000	.0329	.0000	.0061	.0078	.0057	.0324	.0008	.0142
%RSD	5.498	241.5	.6812	201.0	15.65	560.0	69.29	5.815	22.97
#1	.0007	.0369	-.0071	-.0013	.0554	.0030	.0697	-.0150	.0718
#2	.0006	-.0096	-.0070	.0073	.0444	-.0051	.0238	-.0138	.0518
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 17:38:25 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0050	-.0002	.0230	.0061	.0130	-.0079	.0017	-.0003	-.0041
Stddev	.0019	.0003	.0191	.0010	.0022	.0028	.0002	.0003	.0022
%RSD	37.65	180.7	82.96	16.63	16.63	35.29	12.09	115.8	54.88
#1	.0064	.0000	.0095	.0054	.0115	-.0098	.0018	-.0005	-.0025
#2	.0037	-.0004	.0365	.0068	.0146	-.0059	.0015	-.0001	-.0057
Check ?	Chk Pass	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	.0004	-.0009	.0040
Stddev	.0006	.0011	.0002
%RSD	134.2	122.8	4.435
#1	.0000	-.0016	.0039
#2	.0009	-.0001	.0041
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	13258.
Stddev	21.
%RSD	.15936
#1	13243.
#2	13273.

Sample Name: CCV Acquired: 1/11/2017 17:41:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4910	1.010	1.976	1.010	.9880	1.016	.9892	50.39	.9925
Stddev	.0058	.002	.012	.002	.0084	.006	.0043	.20	.0053
%RSD	1.183	.1638	.6165	.2203	.8528	.6031	.4398	.3972	.5389
#1	.4869	1.011	1.967	1.008	.9821	1.011	.9922	50.25	.9888
#2	.4951	1.008	1.985	1.011	.9940	1.020	.9861	50.53	.9963
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9988	.9697	.9920	.9847	1.003	.9926	.9973	1.007	9.848
Stddev	.0085	.0030	.0076	.0063	.013	.0127	.0035	.011	.097
%RSD	.8482	.3122	.7644	.6438	1.250	1.278	.3543	1.045	.9869
#1	.9928	.9675	.9866	.9802	.9945	.9836	.9948	1.015	9.779
#2	1.005	.9718	.9973	.9892	1.012	1.002	.9998	.9999	9.917
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9839	50.55	.9886	1.022	50.11	1.029	2.653	1.936	25.14
Stddev	.0089	.08	.0064	.017	.38	.005	.083	.037	.29
%RSD	.9069	.1609	.6485	1.657	.7662	.4575	3.145	1.932	1.152
#1	.9776	50.50	.9841	1.010	49.84	1.026	2.594	1.909	24.93
#2	.9903	50.61	.9931	1.033	50.38	1.032	2.712	1.962	25.34
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 17:41:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.088	.9985	2.041	9.749	F 20.86	1.022	.9899	1.005	1.980
Stddev	.004	.0069	.030	.029	.06	.008	.0075	.008	.024
%RSD	.2105	.6864	1.448	.3024	.3024	.7721	.7624	.8404	1.228
#1	2.091	.9937	2.020	9.728	20.82	1.017	.9845	.9989	1.963
#2	2.085	1.003	2.062	9.770	20.91	1.028	.9952	1.011	1.998
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.017	.9883	.9864
Stddev	.004	.0030	.0111
%RSD	.3689	.3035	1.121
#1	1.015	.9862	.9786
#2	1.020	.9904	.9942
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13261.
Stddev	95.
%RSD	.71948
#1	13329.
#2	13194.

Sample Name: CCB Acquired: 1/11/2017 17:44:48 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0021**	**-.0234**	**-.0288**	**-.0001**	**.0023**	**.0023**	**.0016**	**.0238**	**-.0000**
Stddev	.0002	.0015	.0128	.0022	.0002	.0002	.0066	.0143	.0004
%RSD	8.411	6.513	44.53	2395.	10.81	10.61	409.9	60.31	3158.
#1	.0020	-.0245	-.0378	-.0017	.0025	.0025	-.0031	.0339	.0003
#2	.0022	-.0223	-.0197	.0015	.0021	.0021	.0063	.0136	-.0003
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0014**	**.0007**	**.0017**	**-.0058**	**.0028**	**.0021**	**-.0041**	**-.0029**	**-.0019**
Stddev	.0006	.0002	.0004	.0003	.0004	.0028	.0028	.0067	.0423
%RSD	39.56	32.73	23.18	4.367	14.38	130.9	69.70	230.1	2251.
#1	-.0010	.0005	.0014	-.0056	.0025	.0041	-.0021	-.0077	.0280
#2	-.0018	.0008	.0020	-.0060	.0031	.0002	-.0061	.0018	-.0318
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0014**	**-.0029**	**-.0072**	**-.0011**	**.0446**	**-.0013**	**.0381**	**-.0039**	**.0641**
Stddev	.0003	.0072	.0001	.0010	.0095	.0010	.0114	.0075	.0033
%RSD	22.54	248.7	2.039	87.46	21.36	78.79	30.02	193.4	5.219
#1	.0016	.0022	-.0071	-.0004	.0513	-.0006	.0300	-.0092	.0664
#2	.0012	-.0079	-.0073	-.0018	.0378	-.0020	.0461	.0014	.0617
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 17:44:48 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0134	.0001	.0412	.0057	.0123	-.0030	.0016	.0007	.0190
Stddev	.0015	.0001	.0031	.0015	.0033	.0079	.0004	.0001	.0066
%RSD	11.37	136.6	7.510	26.75	26.75	259.7	22.79	14.98	34.74
#1	-.0123	.0002	.0434	.0068	.0146	-.0086	.0018	.0008	.0143
#2	-.0145	.0000	.0390	.0047	.0100	.0025	.0013	.0006	.0236
Check ?	Chk Pass	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	.0021	-.0000	.0022
Stddev	.0037	.0006	.0008
%RSD	177.1	1558.	38.84
#1	-.0005	-.0004	.0027
#2	.0047	.0004	.0016
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	13627.
Stddev	132.
%RSD	.97011
#1	13720.
#2	13533.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52458	PCN	Nitric acid:	52458	PCN
Hydrochloric acid:	52395	PCN	Hydrochloric acid:	52395	PCN

VERIFIED BY: AEB 1/12/17

Saturated Paste

QC List Type: QC-ICP-SP
QCListMatClass: LIQUID
Bench Sheet List: I-ICP2-D-SP
QC Ref: MA-ICP-D-SOIL
Group ID: MA-G-ICP_-SP
Method Ref: M6010B
SOP Ref: SOPII012

WG416011

ACZ Laboratories, Inc

Instrument ID: ICP8
Analyst: LEB
ACZ Dept: 33
Create Date: 01/11/2017 9:52
Start Date/Time: 1/11/17
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	CA SP	K SP	MG SP	NA SP	Dilution
1	WG416011ICV	II161209-1			1	✓	✓	✓	✓	1
2	WG416011ICB	NONE			1	✓	✓	✓	✓	1
3	WG416011PQV	II161228-3			1	✓	✓	✓	✓	1
4	WG416011ICSAB	II161031-5			1	✓	✓	✓	✓	1
5	L34445-01	TP-6_7_9 (2-5)			1	✓	✓	✓	✓	1
6	L34445-02	TP-12 (2-4)			1	✓	✓	✓	✓	1
7	L34445-03	TP-15_16 (2-13)			1	✓	✓	✓	✓	1
8	L34445-04	TP-20 (1-4)			1	✓	✓	✓	✓	1
9	L34445-04DUP	NONE			1	✓	✓	✓	✓	1
10	L34674-01	SB-06GT (1.5-10)			1	✓	✓	✓	✓	1
11	L34674-02	SB-07GT (0-4)			1	✓	✓	✓	✓	1
12	L34674-03	SB-09GT (8-12)			1	✓	✓	✓	✓	1
13	WG416011CCV1	II161227-1			1	✓	✓	✓	✓	1
14	WG416011CCB1	NONE			1	✓	✓	✓	✓	1
15	L34674-04	SB-09GT (18-22)			1	✓	✓	✓	✓	1
16	L34674-05	SB-12GT (0-27)			1	✓	✓	✓	✓	1
17	L34674-06	SB-13AL (0-25)			1	✓	✓	✓	✓	1
18	L34674-07	SB-14AL (0-15)			1	✓	✓	✓	✓	1
19	L34674-08	SB-14AL (15-35)			1	✓	✓	✓	✓	1
20	L34674-09	SB-15AL (0-25)			1	✓	✓	✓	✓	1
21	L34674-10	SB-15AL (25-50)			1	✓	✓	✓	✓	1
22	L34674-14	SB-09GT (8-12-DUPLIC			1	✓	✓	✓	✓	1
23	WG416011CCV2	II161227-1			1	✓	✓	✓	✓	1
24	WG416011CCB2	NONE			1	✓	✓	✓	✓	1

Report Comments:

Internal Comments

AREV: LEB 1/11/17
Initials, Date

SREV: 1-11-17
Initials, Date

L34445-1701201627

1/11/2017 9:53:04 AM 122316

Saturated Paste

QC List Type: QC-ICP-SP
QCListMatClass: LIQUID
Bench Sheet List: I-ICP2-D-SP
QC Ref: MA-ICP-D-SOIL
Group ID: MA-G-ICP_-SP
Method Ref: M6010B
SOP Ref: SOPII012

WG416011

ACZ Laboratories, Inc

Instrument ID: ICP8
Analyst:
ACZ Dept: 33
Create Date: 01/11/2017 9:52
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

L34445-1701201627

1/11/2017 9:53:04 AM 122316

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	LEB
Date:	1/11/17
Approved By:	[illegible]
Date:	1/11/17

Work Group:	WG416011
Sample Type:	Sat. Paste
Analysis Date:	1/11/17
Analyst:	LEB

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	✓		
2) Are all of the QC critera listed in LIMS within specified limits? **	✓		
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
5) Is a current standard/reagent form attached to the workgroup?	✓		
6) Have all dilutions performed at the bench been checked off on the benchsheet?			✓
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			✓
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			✓
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			✓
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
	All Passing	

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416011

Date Reported: 11-Jan-17
Run ID: R1491480
Date Analyzed: 11-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416011ICV

Tag:

Measured: 1/11/2017 10:07:43 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	99.4	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	99	1		%	++	0.1	0.5			
SREV	CALCIUM	RSD	0.691	1		mg/L	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	99.3	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	99	1		%	++	0.2	1			
SREV	MAGNESIUM	RSD	0.824	1		mg/L	++	0.2	1			
SREV	POTASSIUM	FOUND	20.0	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	100	1		%	++	0.2	1			
SREV	POTASSIUM	RSD	0.669	1		mg/L	++	0.2	1			
SREV	SODIUM	FOUND	99.9	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	100	1		%	++	0.2	1			
SREV	SODIUM	RSD	0.836	1		mg/L	++	0.2	1			
SREV	YTTRIUM	REC	100.65	1		%	++	0.001	0.005			

WG416011ICB

Tag:

Measured: 1/11/2017 10:10:47 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	102.07	1		%	++	0.001	0.005			

WG416011PQV

Tag:

Measured: 1/11/2017 10:13:59 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	0.482	1	B	mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	96	1	B	%	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	1.000	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	100	1		%	++	0.2	1			
SREV	POTASSIUM	FOUND	1.03	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	103	1		%	++	0.2	1			
SREV	SODIUM	FOUND	1.08	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	108	1		%	++	0.2	1			
SREV	YTTRIUM	REC	102.64	1		%	++	0.001	0.005			

WG416011ICSAB

Tag:

Measured: 1/11/2017 10:17:11 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	238	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	95	1		%	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	246	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	98	1		%	++	0.2	1			
SREV	POTASSIUM	FOUND	24.7	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	99	1		%	++	0.2	1			
SREV	SODIUM	FOUND	25.3	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	101	1		%	++	0.2	1			
SREV	YTTRIUM	REC	102.92	1		%	++	0.001	0.005			

L34445-01

Tag:

Measured: 1/11/2017 10:23:29 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.915	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.529	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.105	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.145	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	106	1		meq/L	++	0.001	0.005			

L34445-02

Tag:

Measured: 1/11/2017 10:26:37 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	3.01	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.279	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0843	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.104	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34445-03

Tag:

Measured: 1/11/2017 10:29:48 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.886	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.568	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.161	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.234	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34445-04

Tag:

Measured: 1/11/2017 10:32:56 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.702	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.655	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.198	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.0878	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	108	1		meq/L	++	0.001	0.005			

L34445-04DUP

Tag: Measured: 1/11/2017 10:36:05 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	0.735	1		meq/L	++	0.005	0.025			
SREV	CALCIUM	RPD	5	1		%	++	0.005	0.025			
SREV	MAGNESIUM	FOUND	0.677	1		meq/L	++	0.017	0.082			
SREV	MAGNESIUM	RPD	3	1		%	++	0.017	0.082			
SREV	POTASSIUM	FOUND	0.195	1		meq/L	++	0.0051	0.0256			
SREV	POTASSIUM	RPD	2	1		%	++	0.0051	0.0256			
SREV	SODIUM	FOUND	0.0930	1		meq/L	++	0.0087	0.0435			
SREV	SODIUM	RPD	6	1		%	++	0.0087	0.0435			
SREV	YTTRIUM	REC	106.83	1		meq/L	++	0.001	0.005			

L34674-01

Tag: Measured: 1/11/2017 10:39:13 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	2.46	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.633	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.145	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.171	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	106	1		meq/L	++	0.001	0.005			

L34674-02

Tag: Measured: 1/11/2017 10:42:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.963	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.611	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.251	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.0899	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

L34674-03

Tag: Measured: 1/11/2017 10:45:33 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.40	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.563	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.230	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.304	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34674-04

Tag: Measured: 1/11/2017 10:48:43 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.30	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.382	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0825	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.241	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

L34674-05

Tag: Measured: 1/11/2017 10:51:55 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	2.39	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.656	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.113	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.192	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

WG416011CCV1

Tag: Measured: 1/11/2017 10:55:07 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	49.4	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	99	1		%	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	49.5	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	99	1		%	++	0.2	1			
SREV	POTASSIUM	FOUND	9.51	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	95	1		%	++	0.2	1			
SREV	SODIUM	FOUND	49.4	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	99	1		%	++	0.2	1			
SREV	YTTRIUM	REC	104.53	1		%	++	0.001	0.005			

WG416011CCB1

Tag: Measured: 1/11/2017 10:58:14 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	103.07	1		%	++	0.001	0.005			

L34674-06

Tag: Measured: 1/11/2017 11:01:28 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	2.59	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.778	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.167	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.268	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34674-07

Tag: Measured: 1/11/2017 11:04:39 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.996	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	1.89	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0456	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.330	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	106	1		meq/L	++	0.001	0.005			

L34674-08

Tag: Measured: 1/11/2017 11:07:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	2.15	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	1.25	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0936	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.572	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

L34674-09

Tag: Measured: 1/11/2017 11:11:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.28	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.413	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0812	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.502	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

L34674-10

Tag:

Measured: 1/11/2017 11:14:14 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.29	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.392	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0959	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.445	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34674-14

Tag:

Measured: 1/11/2017 11:17:25 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.35	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.539	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.219	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.307	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

WG416011CCV2

Tag:

Measured: 1/11/2017 11:20:35 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	50.0	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	100	1		%	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	49.7	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	99	1		%	++	0.2	1			
SREV	POTASSIUM	FOUND	9.72	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	97	1		%	++	0.2	1			
SREV	SODIUM	FOUND	49.8	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	100	1		%	++	0.2	1			
SREV	YTTRIUM	REC	104.62	1		%	++	0.001	0.005			

WG416011CCB2

Tag:

Measured: 1/11/2017 11:23:43 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	104.52	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/11/2017 9:55:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0002**	**-.0001**	**-.0000**	**.0001**	**.0028**	**-.0075**	**.0001**	**-.0077**	**-.0002**
Stddev	.0003	.0000	.0000	.0000	.0003	.0000	.0000	.0003	.0000
%RSD	158.4	63.30	92.93	41.15	11.01	.2308	22.99	4.205	1.700
#1	-.0004	-.0000	-.0000	.0001	.0030	-.0075	.0001	-.0075	-.0002
#2	.0000	-.0001	-.0000	.0001	.0026	-.0075	.0002	-.0079	-.0002

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**-.0000**	**-.0000**	**.0002**	**.0007**	**.0002**	**.0004**	**.0003**	**.0065**
Stddev	.0000	.0000	.0000	.0002	.0001	.0001	.0001	.0000	.0009
%RSD	41.15	216.9	86.44	81.54	18.65	45.05	18.61	9.994	14.19
#1	.0000	.0000	-.0001	.0003	.0008	.0001	.0003	.0003	.0071
#2	.0000	-.0000	-.0000	.0001	.0006	.0002	.0004	.0002	.0058

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0035**	**-.0000**	**.0003**	**.0000**	**.0099**	**.0000**	**-.0002**	**.0000**	**.0001**
Stddev	.0002	.0000	.0001	.0000	.0003	.0000	.0000	.0000	.0000
%RSD	4.664	26.60	46.41	60.06	3.113	72.67	3.781	34.59	20.72
#1	-.0034	-.0000	.0004	.0001	.0101	.0000	-.0002	.0001	.0001
#2	-.0036	-.0000	.0002	.0000	.0097	.0000	-.0002	.0000	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0002**	**.0001**	**.0005**	**.0005**	**.0000**	**.0010**	**.0001**	**-.0000**
Stddev	.0000	.0003	.0000	.0001	.0001	.0000	.0002	.0000	.0000
%RSD	97.66	110.5	11.55	13.93	13.93	277.3	26.04	15.29	68.20
#1	.0000	.0004	.0001	.0005	.0005	-.0000	.0008	.0002	-.0001
#2	.0000	.0001	.0001	.0006	.0006	.0000	.0011	.0001	-.0000

Sample Name: Blank Acquired: 1/11/2017 9:55:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	-.0004	-.0000	.0001
Stddev	.0000	.0001	.0000
%RSD	11.43	201.9	21.40
#1	-.0003	.0000	.0001
#2	-.0004	-.0001	.0001

Int. Std.	Y_3710
Units	Cts/S
Avg	11782.
Stddev	57.
%RSD	.48244
#1	11822.
#2	11741.

Sample Name: L34445-03 Acquired: 1/11/2017 10:29:48 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0005	15.62	-.0174	.0700	.0806	.0068	-.0180	17.76	.0046
Stddev	.0057	.03	.0106	.0006	.0001	.0000	.0161	.11	.0004
%RSD	1259.	.1974	60.61	.8388	.1029	.4934	89.60	.6079	8.355
#1	-.0045	15.64	-.0249	.0704	.0806	.0068	-.0066	17.68	.0043
#2	.0036	15.60	-.0100	.0695	.0807	.0067	-.0294	17.83	.0049

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044	.0099	.0822	.0748	.0109	8.633	8.526	-.0278	6.315
Stddev	.0006	.0004	.0037	.0062	.0033	.031	.000	.0230	.016
%RSD	14.30	4.497	4.495	8.263	29.75	.3551	.0018	82.74	.2468
#1	.0049	.0096	.0796	.0704	.0132	8.654	8.526	-.0115	6.326
#2	.0040	.0102	.0849	.0791	.0086	8.611	8.526	-.0440	6.304

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0144	6.899	.1529	.0083	5.384	.0193	.7705	.0240	4.476
Stddev	.0004	.021	.0002	.0037	.027	.0034	.0051	.0034	.134
%RSD	2.841	.2999	.1173	44.22	.4952	17.60	.6581	14.04	2.998
#1	.0141	6.913	.1528	.0109	5.366	.0169	.7740	.0216	4.382
#2	.0147	6.884	.1531	.0057	5.403	.0217	.7669	.0264	4.571

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0086	.0059	-.0201	37.34	79.90	.0246	.0692	.5000	.0163
Stddev	.0178	.0002	.0057	.15	.32	.0034	.0002	.0011	.0034
%RSD	207.4	2.739	28.37	.4052	.4052	13.62	.2989	.2210	21.03
#1	-.0040	.0060	-.0241	37.44	80.13	.0223	.0690	.5008	.0139
#2	.0211	.0058	-.0161	37.23	79.67	.0270	.0693	.4992	.0187

Sample Name: L34445-03 Acquired: 1/11/2017 10:29:48 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0394	.0877	.0888
Stddev	.0000	.0006	.0001
%RSD	.1223	.7321	.0890
#1	.0394	.0872	.0888
#2	.0394	.0881	.0889

Int. Std.	Y_3710
Units	Cts/S
Avg	12425.
Stddev	190.
%RSD	1.5269
#1	12559.
#2	12291.

Sample Name: CCB Acquired: 1/11/2017 10:58:14 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0169**	**.0086**	**.0093**	**.0040**	**.0071**	**.0163**	**-.0444**	**.0042**
Stddev	.0025	.0055	.0056	.0052	.0001	.0003	.0079	.0269	.0009
%RSD	349.7	32.40	65.24	55.51	2.794	3.577	48.29	60.63	21.53
#1	.0010	.0208	.0046	.0129	.0041	.0073	.0107	-.0253	.0049
#2	-.0025	.0131	.0126	.0056	.0040	.0070	.0218	-.0634	.0036
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0049**	**.0065**	**.0130**	**.0075**	**-.0013**	**.0029**	**.0073**	**-.0194**	**-.0003**
Stddev	.0000	.0011	.0025	.0030	.0003	.0081	.0023	.0478	.0151
%RSD	.4232	17.36	19.05	39.51	19.53	282.3	32.18	245.8	5857.
#1	.0049	.0073	.0112	.0096	-.0012	-.0029	.0089	.0143	.0104
#2	.0049	.0057	.0147	.0054	-.0015	.0086	.0056	-.0532	-.0109
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0011**	**-.0287**	**.0016**	**.0062**	**.0543**	**.0011**	**-.0311**	**.0160**	**.0189**
Stddev	.0000	.0135	.0001	.0002	.0098	.0008	.0048	.0132	.0160
%RSD	4.583	47.13	3.405	2.747	18.10	70.95	15.57	82.30	84.99
#1	.0010	-.0191	.0015	.0060	.0613	.0005	-.0345	.0067	.0075
#2	.0011	-.0382	.0016	.0063	.0474	.0016	-.0277	.0253	.0302
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 10:58:14 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0130	.0034	.0003	.0209	.0446	.0093	.0035	.0025	-.0131
Stddev	.0269	.0003	.0004	.0047	.0100	.0182	.0002	.0011	.0184
%RSD	207.4	8.518	111.4	22.41	22.41	194.6	5.863	42.69	140.4
#1	.0320	.0036	.0001	.0175	.0376	-.0035	.0036	.0033	-.0001
#2	-.0061	.0032	.0006	.0242	.0517	.0222	.0033	.0018	-.0261
Check ?	Chk Pass	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	-.0002	.0068	.0050
Stddev	.0003	.0003	.0004
%RSD	147.9	4.252	8.567
#1	.0000	.0070	.0053
#2	-.0004	.0066	.0047
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	12144.
Stddev	68.
%RSD	.55763
#1	12192.
#2	12096.

Sample Name: CalStd-1 Acquired: 1/11/2017 9:58:22 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0242**	**.1407**	**.0040**	**.0312**	**3.490**	**1.644**	**.0064**	**.0429**	**.0622**
Stddev	.0001	.0002	.0001	.0006	.003	.003	.0001	.0003	.0008
%RSD	.5570	.1173	2.541	1.889	.0949	.1884	1.314	.6104	1.289
#1	.0242	.1406	.0039	.0308	3.487	1.646	.0063	.0431	.0616
#2	.0243	.1408	.0041	.0317	3.492	1.642	.0065	.0427	.0628

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0501**	**.0184**	**.0648**	**.0891**	**.0481**	**.0427**	**.1086**	**.0039**	**.1365**
Stddev	.0008	.0002	.0008	.0003	.0002	.0003	.0006	.0002	.0004
%RSD	1.540	1.317	1.267	.3526	.3606	.6646	.5361	4.908	.2709
#1	.0496	.0182	.0642	.0893	.0480	.0429	.1090	.0038	.1362
#2	.0507	.0185	.0654	.0888	.0482	.0425	.1082	.0040	.1367

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.8307**	**.0212**	**.2610**	**.0137**	**.1177**	**.0032**	**.0087**	**.0040**	**.0024**
Stddev	.0011	.0002	.0003	.0002	.0001	.0001	.0001	.0000	.0000
%RSD	.1377	.8089	.1289	1.204	.0756	1.922	.5793	.9906	.5349
#1	.8315	.0213	.2612	.0136	.1178	.0031	.0086	.0040	.0024
#2	.8299	.0210	.2607	.0138	.1177	.0032	.0087	.0041	.0024

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.8035**	**.0040**	**.0387**	**.0387**	**.0061**	**2.580**	**.0899**	**.0097**	**.0202**
Stddev	.0010	.0001	.0001	.0001	.0000	.001	.0001	.0001	.0000
%RSD	.1268	1.425	.3421	.3421	.2215	.0434	.1004	1.251	.0687
#1	.8042	.0040	.0388	.0388	.0061	2.580	.0899	.0097	.0203
#2	.8028	.0041	.0386	.0386	.0061	2.579	.0900	.0098	.0202

Sample Name: CalStd-1 Acquired: 1/11/2017 9:58:22 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0215	.0315
Stddev	.0004	.0005
%RSD	1.832	1.588
#1	.0212	.0311
#2	.0217	.0318

Int. Std.	Y_3710
Units	Cts/S
Avg	12193.
Stddev	180.
%RSD	1.4774
#1	12320.
#2	12066.

Sample Name: CalStd-2 Acquired: 1/11/2017 10:01:28 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0491	.2848	.0081	.0629	7.049	3.357	.0127	.0942	.1259
Stddev	.0005	.0031	.0000	.0000	.065	.036	.0001	.0017	.0004
%RSD	.9959	1.083	.5210	.0513	.9213	1.076	.4247	1.836	.2947
#1	.0494	.2870	.0081	.0630	7.095	3.383	.0127	.0954	.1261
#2	.0487	.2826	.0081	.0629	7.003	3.332	.0127	.0929	.1256

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1011	.0373	.1313	.1791	.0960	.0860	.2196	.0076	.2645
Stddev	.0004	.0003	.0001	.0016	.0008	.0010	.0020	.0003	.0029
%RSD	.3788	.7731	.0419	.9086	.8222	1.214	.9276	3.742	1.113
#1	.1013	.0375	.1314	.1803	.0966	.0867	.2210	.0078	.2666
#2	.1008	.0371	.1313	.1780	.0955	.0852	.2181	.0074	.2625

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.663	.0433	.5242	.0277	.2297	.0065	.0175	.0079	.0049
Stddev	.018	.0008	.0057	.0002	.0022	.0000	.0001	.0000	.0000
%RSD	1.094	1.750	1.086	.6744	.9706	.1714	.3131	.1564	.0303
#1	1.676	.0438	.5283	.0278	.2313	.0065	.0175	.0079	.0049
#2	1.650	.0428	.5202	.0275	.2281	.0065	.0174	.0080	.0049

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.618	.0081	.0773	.0773	.0122	5.202	.1816	.0197	.0413
Stddev	.017	.0000	.0014	.0014	.0000	.055	.0022	.0001	.0005
%RSD	1.045	.1991	1.764	1.764	.3281	1.053	1.221	.4137	1.314
#1	1.630	.0081	.0783	.0783	.0123	5.240	.1831	.0196	.0416
#2	1.606	.0082	.0763	.0763	.0122	5.163	.1800	.0197	.0409

Sample Name: CalStd-2 Acquired: 1/11/2017 10:01:28 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0435	.0634
Stddev	.0001	.0003
%RSD	.2840	.5160
#1	.0436	.0637
#2	.0434	.0632

Int. Std.	Y_3710
Units	Cts/S
Avg	12072.
Stddev	76.
%RSD	.62800
#1	12126.
#2	12019.

Sample Name: CalStd-3 Acquired: 1/11/2017 10:04:31 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.954	2.577	.4227	11.04	.0271	.0787
Stddev	.008	.007	.0012	.02	.0003	.0011
%RSD	.4298	.2561	.2755	.2054	.9785	1.443
#1	1.960	2.581	.4235	11.06	.0269	.0779
#2	1.948	2.572	.4219	11.03	.0272	.0795

Int. Std.	Y_3710
Units	Cts/S
Avg	11733.
Stddev	143.
%RSD	1.2146
#1	11834.
#2	11632.

Sample Name: ICV Acquired: 1/11/2017 10:07:43 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9778	2.023	3.932	2.002	1.937	1.968	1.942	99.41	1.927
Stddev	.0066	.004	.087	.051	.018	.019	.015	.69	.034
%RSD	.6724	.1881	2.225	2.575	.9143	.9761	.7446	.6905	1.766
#1	.9731	2.020	3.870	1.965	1.924	1.954	1.931	98.93	1.903
#2	.9824	2.025	3.993	2.038	1.949	1.981	1.952	99.90	1.951
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.934	1.910	1.949	1.915	1.951	1.932	1.935	1.947	20.00
Stddev	.032	.037	.044	.012	.030	.020	.013	.026	.13
%RSD	1.673	1.956	2.253	.6222	1.524	1.055	.6770	1.315	.6685
#1	1.911	1.883	1.918	1.906	1.930	1.918	1.925	1.965	19.91
#2	1.957	1.936	1.980	1.923	1.972	1.947	1.944	1.929	20.10
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.967	99.26	1.922	2.001	99.92	2.025	5.235	3.817	50.66
Stddev	.016	.82	.013	.043	.84	.036	.102	.094	1.24
%RSD	.7960	.8235	.6934	2.151	.8357	1.772	1.947	2.473	2.440
#1	1.956	98.68	1.913	1.970	99.33	2.000	5.163	3.751	49.79
#2	1.978	99.84	1.931	2.031	100.5	2.051	5.307	3.884	51.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICV Acquired: 1/11/2017 10:07:43 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.098**	**1.939**	**3.970**	**19.00**	F **40.67**	**2.006**	**1.941**	**1.954**	**3.892**
Stddev	.102	.013	.094	.14	.29	.053	.018	.019	.093
%RSD	2.480	.6795	2.366	.7143	.7143	2.662	.9285	.9812	2.380
#1	4.026	1.930	3.903	18.91	40.46	1.968	1.929	1.941	3.827
#2	4.170	1.949	4.036	19.10	40.87	2.044	1.954	1.968	3.958
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					20.00				
Range					5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**1.976**	**1.895**	**1.955**
Stddev	.019	.037	.035
%RSD	.9502	1.945	1.795
#1	1.963	1.869	1.930
#2	1.989	1.921	1.979
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**11858.**
Stddev	142.
%RSD	1.2007
#1	11959.
#2	11758.

Sample Name: ICB Acquired: 1/11/2017 10:10:47 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008	.0155	-.0082	.0113	.0052	.0080	-.0166	.0065	.0052
Stddev	.0018	.0006	.0106	.0048	.0005	.0004	.0191	.0355	.0001
%RSD	233.3	3.654	130.2	42.30	9.883	5.284	114.8	544.2	2.211
#1	.0020	.0159	-.0157	.0147	.0055	.0083	-.0031	.0317	.0051
#2	-.0005	.0151	-.0006	.0079	.0048	.0077	-.0301	-.0186	.0053
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035	.0083	.0141	.0083	.0030	.0062	.0052	-.0225	-.0112
Stddev	.0001	.0001	.0013	.0023	.0026	.0058	.0020	.0201	.0181
%RSD	2.054	1.736	9.143	28.07	86.99	92.58	38.60	89.21	161.0
#1	.0035	.0082	.0132	.0066	.0011	.0103	.0038	-.0367	.0016
#2	.0034	.0084	.0151	.0099	.0048	.0021	.0067	-.0083	-.0241
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0020	-.0136	.0028	.0067	.0916	.0045	-.0369	.0261	.0558
Stddev	.0002	.0067	.0006	.0052	.0275	.0053	.0264	.0141	.0146
%RSD	11.35	49.30	21.97	77.82	29.99	118.3	71.59	53.90	26.12
#1	.0021	-.0089	.0033	.0030	.1111	.0007	-.0555	.0360	.0662
#2	.0018	-.0183	.0024	.0104	.0722	.0083	-.0182	.0161	.0455
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/11/2017 10:10:47 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0146	.0044	-.0068	.0254	.0544	.0116	.0045	.0034	.0183
Stddev	.0164	.0003	.0066	.0131	.0280	.0091	.0005	.0003	.0116
%RSD	112.5	7.629	97.11	51.50	51.50	78.72	11.15	7.704	63.54
#1	.0262	.0047	-.0115	.0347	.0742	.0181	.0049	.0036	.0101
#2	.0030	.0042	-.0021	.0162	.0346	.0051	.0041	.0032	.0265
Check ?	Chk Pass	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	.0022	.0076	.0043
Stddev	.0029	.0001	.0007
%RSD	130.4	1.189	16.50
#1	.0002	.0076	.0047
#2	.0043	.0077	.0038
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	12026.
Stddev	143.
%RSD	1.1899
#1	12127.
#2	11924.

Sample Name: PQV Acquired: 1/11/2017 10:13:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0232	.1693	.1913	.0590	.0194	.0577	.2300	.4824	F .0201
Stddev	.0031	.0016	.0110	.0017	.0000	.0002	.0124	.0098	.0005
%RSD	13.28	.9458	5.770	2.957	.2515	.2997	5.399	2.030	2.287
#1	.0254	.1682	.1835	.0578	.0194	.0576	.2388	.4893	.0198
#2	.0211	.1705	.1991	.0602	.0193	.0578	.2212	.4754	.0204
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value									.0150
Range									30.44%

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0199	.0571	F .0657	.0617	.0575	.0586	.0557	.5086	1.026
Stddev	.0007	.0009	.0005	.0000	.0006	.0033	.0021	.0067	.018
%RSD	3.550	1.561	.8232	.0444	.9921	5.610	3.788	1.314	1.728
#1	.0194	.0564	.0661	.0617	.0579	.0609	.0572	.5133	1.038
#2	.0204	.0577	.0653	.0616	.0571	.0563	.0542	.5038	1.013
Check ?	Chk Fail	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	.0150		.0500						
Range	30.44%		30.44%						

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0433	.9995	.0275	.1098	1.084	.0447	.4716	.1623	1.325
Stddev	.0003	.0366	.0003	.0014	.001	.0074	.0415	.0125	.018
%RSD	.5824	3.662	1.058	1.269	.0543	16.45	8.804	7.686	1.344
#1	.0434	.9736	.0278	.1108	1.084	.0499	.5010	.1535	1.312
#2	.0431	1.025	.0273	.1088	1.084	.0395	.4423	.1712	1.338
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: PQV Acquired: 1/11/2017 10:13:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1520	.5128	.2605	.5415	F 1.159	.2173	.0288	.0273	.5333
Stddev	.0152	.0009	.0079	.0105	.022	.0034	.0001	.0001	.0100
%RSD	10.000	.1756	3.018	1.933	1.933	1.551	.2471	.3957	1.879
#1	.1627	.5122	.2549	.5489	1.175	.2149	.0288	.0274	.5262
#2	.1412	.5135	.2660	.5341	1.143	.2197	.0289	.0273	.5404
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0288	.0574	.0555
Stddev	.0002	.0019	.0004
%RSD	.7965	3.297	.7814
#1	.0290	.0587	.0558
#2	.0287	.0560	.0552
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	12093.
Stddev	32.
%RSD	.26322
#1	12115.
#2	12070.

Sample Name: ICSAB Acquired: 1/11/2017 10:17:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4843	242.4	4.826	.4826	.2398	.2403	.4773	238.3	.4573
Stddev	.0012	.2	.008	.0179	.0004	.0006	.0220	.1	.0082
%RSD	.2497	.0678	.1686	3.710	.1565	.2607	4.614	.0500	1.800
#1	.4835	242.5	4.820	.4699	.2395	.2399	.4617	238.4	.4515
#2	.4852	242.3	4.832	.4952	.2400	.2408	.4929	238.2	.4632
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4607	.2294	.2458	.2370	.2316	93.53	93.09	.4799	24.68
Stddev	.0074	.0049	.0025	.0021	.0062	.06	.07	.0154	.03
%RSD	1.605	2.138	1.025	.9004	2.672	.0662	.0763	3.209	.1333
#1	.4555	.2259	.2440	.2385	.2272	93.58	93.04	.4690	24.65
#2	.4659	.2329	.2476	.2355	.2360	93.49	93.14	.4908	24.70
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4930	246.4	.2339	.4772	25.25	.4623	4.809	.4689	2.496
Stddev	.0006	.4	.0004	.0051	.01	.0070	.007	.0012	.046
%RSD	.1129	.1553	.1509	1.067	.0377	1.514	.1533	.2531	1.848
#1	.4933	246.7	.2336	.4736	25.24	.4573	4.803	.4697	2.464
#2	.4926	246.1	.2341	.4808	25.26	.4672	4.814	.4680	2.529
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/11/2017 10:17:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4872	.4863	4.859	2.426	F 5.192	2.352	.4784	.4756	2.252
Stddev	.0009	.0022	.047	.025	.052	.055	.0013	.0012	.033
%RSD	.1904	.4477	.9666	1.009	1.009	2.337	.2622	.2523	1.465
#1	.4879	.4848	4.826	2.443	5.229	2.313	.4775	.4748	2.229
#2	.4866	.4879	4.892	2.409	5.155	2.391	.4792	.4765	2.275
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2405	.4598	.4796
Stddev	.0001	.0048	.0068
%RSD	.0561	1.045	1.425
#1	.2404	.4564	.4747
#2	.2406	.4632	.4844
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	12126.
Stddev	148.
%RSD	1.2202
#1	12230.
#2	12021.

Sample Name: WASH Acquired: 1/11/2017 10:20:18 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0014**	**.1827**	**.0192**	**.0035**	**.0032**	**.0063**	**-.0054**	**.0907**	**.0042**
Stddev	.0007	.0335	.0087	.0014	.0001	.0003	.0013	.0525	.0008
%RSD	51.78	18.31	45.22	38.72	2.816	4.045	24.76	57.90	18.49
#1	-.0009	.2064	.0254	.0025	.0031	.0065	-.0044	.1278	.0037
#2	-.0019	.1591	.0131	.0045	.0033	.0061	-.0063	.0536	.0048
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0029**	**.0066**	**.0126**	**.0042**	**-.0003**	**.1051**	**.1014**	**-.0308**	**-.0132**
Stddev	.0012	.0006	.0008	.0059	.0010	.0126	.0143	.0021	.0060
%RSD	42.32	8.838	6.372	140.7	336.1	11.98	14.11	6.758	45.60
#1	.0037	.0062	.0132	.0083	.0004	.1140	.1115	-.0294	-.0175
#2	.0020	.0070	.0121	.0000	-.0010	.0962	.0912	-.0323	-.0089
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0001**	**.0900**	**.0104**	**.0060**	**.0060**	**.0039**	**-.0388**	**.0243**	**.0111**
Stddev	.0005	.0538	.0004	.0034	.0031	.0035	.0160	.0182	.0381
%RSD	416.6	59.71	4.258	56.06	51.80	89.59	41.16	74.82	342.2
#1	.0002	.1281	.0107	.0036	.0083	.0014	-.0275	.0114	-.0158
#2	-.0005	.0520	.0101	.0084	.0038	.0063	-.0501	.0371	.0381
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/11/2017 10:20:18 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0099**	**.0028**	**-.0192**	**.0095**	**.0203**	**.0127**	**.0031**	**.0016**	**.0135**
Stddev	.0169	.0000	.0179	.0061	.0131	.0015	.0000	.0006	.0364
%RSD	171.0	.4593	93.19	64.44	64.44	11.76	.9273	38.05	269.6
#1	-.0218	.0027	-.0318	.0138	.0295	.0137	.0031	.0021	.0392
#2	.0021	.0028	-.0065	.0052	.0110	.0116	.0030	.0012	-.0122
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**-.0010**	**.0034**	**.0022**
Stddev	.0014	.0013	.0009
%RSD	142.3	37.72	38.95
#1	-.0020	.0043	.0028
#2	.0000	.0025	.0016
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**12130.**
Stddev	215.
%RSD	1.7711
#1	12282.
#2	11979.

Sample Name: L34445-01 Acquired: 1/11/2017 10:23:29 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	12.24	-.0035	.0416	.0706	.0067	-.0067	18.33	.0065
Stddev	.0019	.10	.0340	.0003	.0001	.0001	.0153	.05	.0008
%RSD	294.4	.8182	963.4	.6066	.1594	2.113	229.4	.2513	12.67
#1	.0019	12.32	-.0276	.0417	.0707	.0068	-.0175	18.30	.0059
#2	-.0007	12.17	.0205	.0414	.0705	.0066	.0042	18.36	.0070

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060	.0109	.1244	.1209	.0193	6.814	6.798	-.0093	4.092
Stddev	.0003	.0001	.0037	.0053	.0000	.089	.103	.0068	.007
%RSD	5.011	1.152	2.981	4.377	.1172	1.309	1.516	72.79	.1725
#1	.0062	.0108	.1218	.1246	.0194	6.877	6.871	-.0045	4.087
#2	.0058	.0110	.1271	.1171	.0193	6.751	6.725	-.0141	4.097

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0103	6.429	.0650	.0137	3.338	.0353	1.197	.0323	4.816
Stddev	.0009	.067	.0009	.0030	.020	.0015	.043	.0068	.103
%RSD	9.173	1.044	1.446	22.18	.5921	4.216	3.630	21.12	2.150
#1	.0096	6.476	.0657	.0158	3.324	.0364	1.166	.0371	4.743
#2	.0109	6.382	.0643	.0115	3.352	.0343	1.227	.0275	4.889

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044	.0045	.0184	29.68	63.51	.0100	.0732	.3762	.0201
Stddev	.0005	.0000	.0029	.36	.77	.0063	.0004	.0057	.0021
%RSD	11.96	.3271	16.03	1.211	1.211	63.58	.5806	1.520	10.46
#1	.0040	.0045	.0163	29.93	64.05	.0055	.0729	.3803	.0186
#2	.0048	.0045	.0204	29.42	62.97	.0145	.0735	.3722	.0215

Sample Name: L34445-01 Acquired: 1/11/2017 10:23:29 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0706	.1584	.1592
Stddev	.0032	.0018	.0029
%RSD	4.601	1.131	1.792
#1	.0683	.1571	.1571
#2	.0729	.1597	.1612

Int. Std.	Y_3710
Units	Cts/S
Avg	12478.
Stddev	244.
%RSD	1.9571
#1	12650.
#2	12305.

Sample Name: L34445-02 Acquired: 1/11/2017 10:26:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0027	1.732	-.0097	.0716	.0273	.0062	.0032	60.27	.0032
Stddev	.0027	.006	.0041	.0007	.0005	.0002	.0071	.46	.0000
%RSD	102.9	.3395	42.47	.9591	1.827	2.935	219.7	.7673	.2117
#1	-.0046	1.737	-.0126	.0721	.0270	.0063	.0083	59.94	.0032
#2	-.0007	1.728	-.0068	.0712	.0277	.0060	-.0018	60.60	.0032

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028	.0058	.0155	.0073	.0066	.9603	.9592	-.0202	3.298
Stddev	.0002	.0018	.0021	.0010	.0050	.0008	.0025	.0510	.011
%RSD	6.776	30.51	13.42	13.93	75.41	.0885	.2594	253.0	.3300
#1	.0027	.0046	.0140	.0080	.0101	.9597	.9575	-.0562	3.291
#2	.0029	.0071	.0169	.0066	.0031	.9609	.9610	.0159	3.306

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0071	3.391	.0388	.0053	2.385	.0036	.2349	.0172	2.321
Stddev	.0006	.022	.0000	.0034	.013	.0027	.0786	.0039	.060
%RSD	9.085	.6556	.1181	63.63	.5637	74.05	33.46	22.78	2.604
#1	.0066	3.375	.0388	.0029	2.376	.0055	.1793	.0200	2.278
#2	.0075	3.407	.0389	.0077	2.395	.0017	.2904	.0144	2.364

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0096	.0027	.0137	9.170	19.62	.0217	.0942	.0556	.0085
Stddev	.0138	.0004	.0014	.015	.03	.0006	.0011	.0000	.0025
%RSD	144.3	14.30	10.58	.1665	.1665	2.640	1.173	.0862	29.78
#1	-.0194	.0024	.0147	9.159	19.60	.0213	.0934	.0556	.0067
#2	.0002	.0029	.0127	9.181	19.65	.0221	.0950	.0556	.0102

Sample Name: L34445-02 Acquired: 1/11/2017 10:26:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0051	.0138	.0103
Stddev	.0036	.0006	.0006
%RSD	71.07	4.587	5.595
#1	.0026	.0133	.0107
#2	.0077	.0142	.0099

Int. Std.	Y_3710
Units	Cts/S
Avg	12371.
Stddev	217.
%RSD	1.7529
#1	12524.
#2	12217.

Sample Name: L34445-04 Acquired: 1/11/2017 10:32:56 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	20.35	.0027	.0790	.0894	.0070	.0021	14.06	.0060
Stddev	.0022	.80	.0218	.0058	.0036	.0002	.0147	.08	.0000
%RSD	361.1	3.927	820.6	7.365	3.977	2.272	704.3	.5491	.1642
#1	.0021	19.78	.0181	.0749	.0869	.0071	-.0083	14.01	.0060
#2	-.0009	20.91	-.0128	.0831	.0919	.0069	.0125	14.12	.0060

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054	.0063	.2637	.2490	.0229	10.18	10.09	-.0142	7.740
Stddev	.0004	.0019	.0083	.0126	.0003	.41	.44	.0199	.279
%RSD	7.849	30.00	3.154	5.067	1.481	4.035	4.357	139.6	3.598
#1	.0051	.0050	.2578	.2400	.0231	9.894	9.777	-.0002	7.543
#2	.0057	.0077	.2696	.2579	.0226	10.47	10.40	-.0283	7.937

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0181	7.962	.1649	.0098	2.018	.0328	1.848	.0290	1.864
Stddev	.0004	.086	.0096	.0005	.023	.0062	.122	.0119	.069
%RSD	2.290	1.082	5.826	4.605	1.138	18.84	6.587	40.90	3.678
#1	.0183	7.901	.1581	.0095	2.002	.0284	1.762	.0206	1.816
#2	.0178	8.023	.1717	.0101	2.034	.0372	1.934	.0374	1.913

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0055	.0059	-.0053	45.69	97.79	.0283	.0530	.5201	.0187
Stddev	.0092	.0003	.0119	1.44	3.09	.0018	.0009	.0269	.0002
%RSD	166.9	4.456	224.4	3.156	3.156	6.460	1.665	5.170	1.181
#1	-.0120	.0057	.0031	44.68	95.60	.0270	.0523	.5011	.0188
#2	.0010	.0061	-.0138	46.71	99.97	.0296	.0536	.5391	.0185

Sample Name: L34445-04 Acquired: 1/11/2017 10:32:56 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0866	.1855	.1814
Stddev	.0044	.0078	.0035
%RSD	5.024	4.212	1.956
#1	.0836	.1800	.1788
#2	.0897	.1910	.1839

Int. Std.	Y_3710
Units	Cts/S
Avg	12699.
Stddev	225.
%RSD	1.7689
#1	12858.
#2	12540.

Sample Name: L34445-04DUP Acquired: 1/11/2017 10:36:05 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009	19.50	-.0157	.0755	.0857	.0070	.0130	14.73	.0055
Stddev	.0040	.03	.0139	.0029	.0010	.0002	.0099	.13	.0004
%RSD	454.9	.1675	88.68	3.839	1.121	3.124	76.09	.8875	6.672
#1	.0037	19.52	-.0058	.0734	.0850	.0071	.0060	14.64	.0053
#2	-.0020	19.48	-.0255	.0775	.0864	.0068	.0200	14.82	.0058

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045	.0071	.2415	.2368	.0205	9.776	9.687	-.0065	7.609
Stddev	.0001	.0033	.0048	.0018	.0062	.010	.001	.0186	.026
%RSD	3.109	46.34	1.998	.7737	30.29	.1018	.0049	285.4	.3470
#1	.0046	.0048	.2380	.2381	.0161	9.783	9.687	-.0197	7.590
#2	.0044	.0094	.2449	.2355	.0249	9.769	9.687	.0067	7.628

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0175	8.228	.1543	.0126	2.137	.0318	1.749	.0307	1.970
Stddev	.0011	.010	.0004	.0009	.015	.0015	.046	.0014	.021
%RSD	6.401	.1193	.2290	7.093	.6925	4.702	2.634	4.475	1.069
#1	.0183	8.221	.1545	.0120	2.127	.0308	1.716	.0317	1.955
#2	.0167	8.235	.1540	.0133	2.147	.0329	1.781	.0297	1.985

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0112	.0057	-.0062	44.19	94.57	.0044	.0544	.4917	.0330
Stddev	.0125	.0003	.0119	.10	.22	.0033	.0005	.0013	.0040
%RSD	111.9	4.436	191.3	.2344	.2344	76.59	.8737	.2696	12.09
#1	.0023	.0059	.0022	44.27	94.73	.0020	.0541	.4908	.0301
#2	.0200	.0055	-.0146	44.12	94.42	.0067	.0548	.4926	.0358

Sample Name: L34445-04DUP Acquired: 1/11/2017 10:36:05 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0831	.1734	.1683
Stddev	.0018	.0060	.0042
%RSD	2.119	3.447	2.499
#1	.0844	.1691	.1653
#2	.0819	.1776	.1713

Int. Std.	Y_3710
Units	Cts/S
Avg	12587.
Stddev	251.
%RSD	1.9961
#1	12764.
#2	12409.

Sample Name: L34674-01 Acquired: 1/11/2017 10:39:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	.8450	.0020	.0699	.0104	.0062	.0075	49.24	.0029
Stddev	.0026	.0068	.0093	.0005	.0000	.0001	.0048	.54	.0010
%RSD	404.0	.8068	463.8	.7202	.1323	2.357	63.79	1.098	34.35
#1	.0025	.8498	.0085	.0703	.0104	.0064	.0041	49.62	.0022
#2	-.0012	.8402	-.0046	.0696	.0104	.0061	.0108	48.86	.0036

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016	.0042	.0135	.0098	.0042	.4416	.4397	-.0217	5.655
Stddev	.0006	.0028	.0006	.0045	.0036	.0171	.0102	.0109	.030
%RSD	36.02	66.32	4.070	45.92	86.08	3.866	2.318	50.19	.5386
#1	.0012	.0062	.0139	.0066	.0016	.4537	.4470	-.0140	5.677
#2	.0020	.0022	.0132	.0130	.0067	.4295	.4325	-.0295	5.634

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060	7.692	.0368	.0080	3.930	.0065	.3341	.0175	4.448
Stddev	.0008	.049	.0005	.0011	.031	.0031	.0507	.0191	.117
%RSD	13.80	.6389	1.475	13.11	.7857	47.22	15.18	109.1	2.634
#1	.0066	7.727	.0372	.0088	3.952	.0086	.2983	.0310	4.365
#2	.0055	7.657	.0364	.0073	3.908	.0043	.3700	.0040	4.530

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0091	.0025	-.0108	6.412	13.72	.0242	.1197	.0254	-.0032
Stddev	.0047	.0001	.0128	.078	.17	.0025	.0009	.0010	.0162
%RSD	52.01	4.187	118.5	1.218	1.218	10.44	.7333	3.851	513.1
#1	-.0058	.0025	-.0017	6.468	13.84	.0224	.1203	.0247	.0083
#2	-.0124	.0024	-.0198	6.357	13.60	.0260	.1191	.0261	-.0146

Sample Name: L34674-01 Acquired: 1/11/2017 10:39:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0022	.0117	.0082
Stddev	.0015	.0015	.0000
%RSD	66.85	12.81	.0399
#1	.0012	.0128	.0082
#2	.0032	.0107	.0082

Int. Std.	Y_3710
Units	Cts/S
Avg	12460.
Stddev	98.
%RSD	.78808
#1	12529.
#2	12391.

Sample Name: L34674-02 Acquired: 1/11/2017 10:42:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0018**	**15.05**	**-.0218**	**.0911**	**.0462**	**.0066**	**.0085**	**19.30**	**.0026**
Stddev	.0007	.46	.0061	.0002	.0015	.0001	.0142	.27	.0014
%RSD	38.37	3.027	27.97	.2500	3.354	1.873	167.2	1.417	53.40
#1	-.0023	14.73	-.0175	.0912	.0451	.0067	-.0016	19.11	.0035
#2	-.0013	15.37	-.0261	.0909	.0473	.0065	.0186	19.49	.0016

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0029**	**.0068**	**.0281**	**.0209**	**.0087**	**7.540**	**7.491**	**-.0030**	**9.835**
Stddev	.0006	.0009	.0013	.0046	.0032	.172	.184	.0011	.203
%RSD	21.86	13.28	4.751	22.16	36.51	2.276	2.458	38.67	2.059
#1	.0034	.0062	.0290	.0177	.0110	7.419	7.361	-.0021	9.692
#2	.0025	.0075	.0271	.0242	.0065	7.662	7.621	-.0038	9.978

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0147**	**7.422**	**.2646**	**.0089**	**2.066**	**.0086**	**.3914**	**.0234**	**2.403**
Stddev	.0003	.079	.0104	.0016	.030	.0040	.0024	.0001	.052
%RSD	2.037	1.061	3.949	18.25	1.462	45.85	.6163	.2732	2.173
#1	.0149	7.366	.2572	.0078	2.044	.0058	.3931	.0234	2.366
#2	.0144	7.477	.2720	.0101	2.087	.0114	.3897	.0233	2.440

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0055**	**.0049**	**-.0170**	**34.74**	**74.35**	**.0058**	**.0627**	**.3703**	**.0265**
Stddev	.0134	.0004	.0106	.91	1.94	.0020	.0013	.0174	.0001
%RSD	246.1	8.375	62.18	2.609	2.609	34.33	2.123	4.705	.3581
#1	.0149	.0047	-.0245	34.10	72.98	.0044	.0618	.3580	.0266
#2	-.0040	.0052	-.0095	35.38	75.72	.0072	.0637	.3826	.0265

Sample Name: L34674-02 Acquired: 1/11/2017 10:42:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0207	.0314	.0293
Stddev	.0005	.0019	.0021
%RSD	2.619	5.921	7.301
#1	.0203	.0300	.0278
#2	.0211	.0327	.0308

Int. Std.	Y_3710
Units	Cts/S
Avg	12584.
Stddev	224.
%RSD	1.7790
#1	12742.
#2	12426.

Sample Name: L34674-03 Acquired: 1/11/2017 10:45:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0029	3.900	.0044	.0496	.0566	.0063	.0074	28.07	.0039
Stddev	.0017	.064	.0031	.0033	.0011	.0000	.0067	.87	.0003
%RSD	57.64	1.628	71.03	6.589	1.950	.4764	91.11	3.116	7.941
#1	-.0041	3.945	.0022	.0519	.0574	.0063	.0026	28.69	.0036
#2	-.0017	3.855	.0066	.0473	.0558	.0063	.0121	27.45	.0041

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030	.0077	.0290	.0256	.0078	2.001	1.992	.0241	8.999
Stddev	.0002	.0009	.0017	.0011	.0064	.012	.011	.0072	.336
%RSD	7.377	11.16	5.978	4.334	81.99	.5979	.5246	29.99	3.735
#1	.0031	.0083	.0278	.0248	.0122	2.009	2.000	.0190	9.236
#2	.0028	.0071	.0302	.0264	.0033	1.992	1.985	.0292	8.761

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0433	6.841	.1045	.0503	6.994	.0149	.6271	.0053	9.613
Stddev	.0012	.218	.0019	.0005	.174	.0031	.0081	.0053	.024
%RSD	2.821	3.180	1.776	.9477	2.484	20.98	1.290	100.9	.2442
#1	.0441	6.995	.1058	.0507	7.117	.0127	.6328	.0015	9.629
#2	.0424	6.687	.1032	.0500	6.871	.0171	.6214	.0091	9.596

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0027	.0030	.0152	22.83	48.87	.0209	.1337	.1350	.0018
Stddev	.0032	.0002	.0104	.38	.81	.0032	.0030	.0014	.0174
%RSD	122.2	7.078	68.20	1.665	1.665	15.07	2.271	1.064	971.9
#1	-.0049	.0032	.0079	23.10	49.44	.0187	.1358	.1360	-.0105
#2	-.0004	.0029	.0226	22.57	48.29	.0231	.1315	.1340	.0141

Sample Name: L34674-03 Acquired: 1/11/2017 10:45:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0142	.0836	.0842
Stddev	.0040	.0020	.0013
%RSD	28.16	2.398	1.544
#1	.0114	.0850	.0851
#2	.0170	.0822	.0833

Int. Std.	Y_3710
Units	Cts/S
Avg	12323.
Stddev	116.
%RSD	.93968
#1	12241.
#2	12405.

Sample Name: L34674-04 Acquired: 1/11/2017 10:48:43 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0008	1.134	-.0149	.0290	.0565	.0062	-.0162	26.15	.0031
Stddev	.0011	.021	.0063	.0014	.0005	.0001	.0012	.20	.0003
%RSD	135.4	1.823	42.11	4.747	.9427	1.205	7.668	.7580	10.56
#1	-.0000	1.119	-.0194	.0300	.0561	.0063	-.0171	26.01	.0028
#2	-.0016	1.148	-.0105	.0280	.0569	.0062	-.0153	26.29	.0033

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032	.0059	.0143	.0071	.0021	.5320	.5312	-.0318	3.225
Stddev	.0000	.0000	.0004	.0001	.0001	.0142	.0198	.0032	.016
%RSD	.9871	.6387	2.592	1.813	6.010	2.664	3.728	10.11	.4936
#1	.0032	.0058	.0145	.0070	.0020	.5220	.5172	-.0341	3.214
#2	.0033	.0059	.0140	.0072	.0022	.5420	.5452	-.0296	3.236

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0216	4.649	.1114	.0331	5.535	.0047	.1813	.0190	9.426
Stddev	.0000	.067	.0013	.0006	.072	.0045	.0379	.0038	.300
%RSD	.1306	1.449	1.156	1.765	1.308	94.42	20.89	20.01	3.184
#1	.0216	4.602	.1104	.0335	5.484	.0016	.2081	.0217	9.214
#2	.0216	4.697	.1123	.0327	5.586	.0079	.1545	.0163	9.638

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0074	.0025	.0229	8.382	17.94	.0000	.0954	.0355	.0139
Stddev	.0084	.0001	.0098	.136	.29	.0068	.0015	.0018	.0248
%RSD	114.0	2.550	42.81	1.622	1.622	29040.	1.521	5.001	177.8
#1	.0014	.0026	.0160	8.286	17.73	-.0048	.0944	.0343	-.0036
#2	.0134	.0025	.0299	8.478	18.14	.0049	.0964	.0368	.0315

Sample Name: L34674-04 Acquired: 1/11/2017 10:48:43 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0054	.0822	.0799
Stddev	.0022	.0035	.0025
%RSD	39.96	4.289	3.100
#1	.0039	.0797	.0781
#2	.0069	.0847	.0816

Int. Std.	Y_3710
Units	Cts/S
Avg	12630.
Stddev	307.
%RSD	2.4329
#1	12847.
#2	12412.

Sample Name: L34674-05 Acquired: 1/11/2017 10:51:55 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	.5491	-.0077	.0502	.0347	.0062	.0057	47.87	.0046
Stddev	.0005	.0089	.0035	.0030	.0001	.0001	.0124	.20	.0004
%RSD	83.73	1.619	45.16	5.909	.2790	1.605	218.1	.4266	8.147
#1	.0002	.5428	-.0053	.0481	.0346	.0063	.0144	48.02	.0049
#2	.0009	.5554	-.0102	.0523	.0347	.0061	-.0031	47.73	.0043

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026	.0066	.0321	.0256	.0080	.2777	.2766	.0085	4.417
Stddev	.0002	.0003	.0003	.0030	.0028	.0023	.0037	.0021	.011
%RSD	8.304	3.955	.9320	11.62	35.23	.8359	1.351	24.39	.2366
#1	.0027	.0068	.0319	.0235	.0100	.2794	.2740	.0100	4.424
#2	.0024	.0064	.0323	.0277	.0060	.2761	.2792	.0070	4.409

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060	7.979	.0516	.0190	4.414	.0221	.4117	.0127	6.060
Stddev	.0002	.029	.0002	.0009	.017	.0056	.0166	.0147	.121
%RSD	3.115	.3617	.2987	4.798	.3795	25.45	4.029	116.1	1.999
#1	.0058	7.999	.0517	.0197	4.402	.0181	.4235	.0023	5.975
#2	.0061	7.959	.0515	.0184	4.426	.0261	.4000	.0231	6.146

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0023	.0024	.0030	5.002	10.71	.0178	.1499	.0241	.0096
Stddev	.0069	.0002	.0097	.014	.03	.0135	.0005	.0008	.0134
%RSD	294.2	6.245	325.9	.2755	.2755	75.91	.3123	3.341	140.3
#1	-.0072	.0025	-.0039	4.993	10.68	.0273	.1495	.0236	.0191
#2	.0025	.0023	.0098	5.012	10.73	.0082	.1502	.0247	.0001

Sample Name: L34674-05 Acquired: 1/11/2017 10:51:55 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0126	.0249	.0231
Stddev	.0001	.0009	.0008
%RSD	1.067	3.708	3.478
#1	.0125	.0243	.0226
#2	.0127	.0256	.0237

Int. Std.	Y_3710
Units	Cts/S
Avg	12589.
Stddev	187.
%RSD	1.4872
#1	12721.
#2	12456.

Sample Name: CCV Acquired: 1/11/2017 10:55:07 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4711	.9904	1.952	.9795	.9545	.9871	.9576	49.42	.9647
Stddev	.0125	.0054	.060	.0226	.0174	.0157	.0073	.57	.0201
%RSD	2.660	.5461	3.064	2.312	1.819	1.591	.7658	1.161	2.082
#1	.4622	.9866	1.910	.9635	.9422	.9760	.9525	49.01	.9505
#2	.4799	.9943	1.994	.9956	.9667	.9982	.9628	49.82	.9789
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9554	.9465	.9722	.9539	.9547	.9787	.9824	.9423	9.506
Stddev	.0236	.0198	.0214	.0143	.0224	.0155	.0139	.0097	.148
%RSD	2.474	2.093	2.206	1.498	2.343	1.580	1.412	1.029	1.555
#1	.9387	.9325	.9570	.9438	.9389	.9678	.9726	.9492	9.401
#2	.9721	.9605	.9873	.9640	.9705	.9897	.9922	.9355	9.610
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9467	49.45	.9574	1.004	49.43	.9952	2.536	1.898	24.68
Stddev	.0186	.46	.0140	.015	.84	.0242	.081	.043	.60
%RSD	1.969	.9204	1.460	1.498	1.697	2.434	3.192	2.260	2.424
#1	.9335	49.13	.9475	.9933	48.84	.9781	2.479	1.867	24.26
#2	.9599	49.78	.9673	1.015	50.03	1.012	2.593	1.928	25.10
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 10:55:07 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.000	.9668	1.954	9.436	F 20.19	1.010	.9547	.9734	1.906
Stddev	.030	.0150	.034	.135	.29	.012	.0168	.0173	.058
%RSD	1.521	1.553	1.726	1.435	1.435	1.199	1.764	1.778	3.032
#1	1.978	.9562	1.930	9.341	19.99	1.001	.9428	.9612	1.865
#2	2.021	.9774	1.978	9.532	20.40	1.019	.9666	.9857	1.946
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.9846	.9580	.9605
Stddev	.0107	.0200	.0235
%RSD	1.088	2.086	2.450
#1	.9771	.9439	.9438
#2	.9922	.9722	.9771
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	12316.
Stddev	319.
%RSD	2.5893
#1	12541.
#2	12090.

Sample Name: L34674-06 Acquired: 1/11/2017 11:01:28 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018	.3960	-.0015	.0715	.0518	.0063	-.0024	51.95	.0047
Stddev	.0015	.0069	.0045	.0006	.0013	.0002	.0060	1.12	.0004
%RSD	81.92	1.753	294.4	.8674	2.519	3.538	254.8	2.157	7.475
#1	.0008	.4009	-.0048	.0719	.0509	.0065	-.0066	51.15	.0045
#2	.0029	.3911	.0017	.0710	.0528	.0061	.0019	52.74	.0050

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030	.0082	.0184	.0120	.0062	.1783	.1772	-.0176	6.539
Stddev	.0000	.0007	.0011	.0006	.0010	.0092	.0021	.0119	.191
%RSD	1.130	8.424	5.883	4.761	15.63	5.156	1.171	67.56	2.914
#1	.0030	.0086	.0176	.0116	.0056	.1718	.1757	-.0092	6.404
#2	.0030	.0077	.0191	.0124	.0069	.1848	.1787	-.0259	6.673

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0289	9.453	.1724	.0333	6.167	.0124	.2398	.0102	17.85
Stddev	.0012	.209	.0057	.0003	.146	.0036	.0105	.0060	.86
%RSD	4.088	2.206	3.311	.8963	2.374	29.16	4.382	58.39	4.842
#1	.0280	9.306	.1684	.0331	6.063	.0099	.2323	.0145	17.23
#2	.0297	9.601	.1765	.0335	6.270	.0150	.2472	.0060	18.46

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0060	.0026	.0238	7.219	15.45	.0074	.2202	.0141	.0020
Stddev	.0302	.0001	.0215	.173	.37	.0002	.0060	.0010	.0010
%RSD	504.4	3.672	90.14	2.392	2.392	3.023	2.737	6.845	50.68
#1	-.0273	.0026	.0390	7.097	15.19	.0076	.2160	.0134	.0027
#2	.0154	.0025	.0086	7.341	15.71	.0072	.2245	.0148	.0013

Sample Name: L34674-06 Acquired: 1/11/2017 11:01:28 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0060	.0577	.0561
Stddev	.0021	.0043	.0022
%RSD	34.89	7.375	3.862
#1	.0046	.0547	.0546
#2	.0075	.0607	.0576

Int. Std.	Y_3710
Units	Cts/S
Avg	12396.
Stddev	523.
%RSD	4.2156
#1	12765.
#2	12026.

Sample Name: L34674-07 Acquired: 1/11/2017 11:04:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0024**	**.4628**	**-.0261**	**.0828**	**.0093**	**.0062**	**-.0145**	**19.96**	**.0040**
Stddev	.0011	.0251	.0214	.0043	.0002	.0000	.0010	.38	.0004
%RSD	46.99	5.429	82.07	5.149	1.675	.1510	7.161	1.893	10.21
#1	-.0016	.4805	-.0110	.0858	.0094	.0062	-.0138	20.23	.0042
#2	-.0032	.4450	-.0413	.0797	.0092	.0063	-.0153	19.69	.0037

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0020**	**.0075**	**.0207**	**.0103**	**.0014**	**.2701**	**.2701**	**-.0266**	**1.782**
Stddev	.0009	.0036	.0005	.0028	.0033	.0017	.0113	.0007	.045
%RSD	46.68	47.67	2.202	27.63	228.9	.6177	4.169	2.761	2.508
#1	.0014	.0049	.0204	.0123	.0037	.2712	.2781	-.0261	1.814
#2	.0027	.0100	.0210	.0083	-.0009	.2689	.2622	-.0271	1.751

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0234**	**22.92**	**.0375**	**.0215**	**7.579**	**-.0001**	**.1940**	**.0094**	**2.661**
Stddev	.0008	.36	.0016	.0019	.088	.0031	.0213	.0066	.080
%RSD	3.345	1.555	4.158	9.077	1.165	2130.	10.98	70.70	2.989
#1	.0240	23.17	.0364	.0201	7.642	.0020	.2091	.0141	2.604
#2	.0229	22.67	.0386	.0229	7.517	-.0023	.1790	.0047	2.717

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0092**	**.0024**	**.0037**	**17.10**	**36.58**	**.0041**	**.1022**	**.0175**	**.0246**
Stddev	.0049	.0002	.0267	.14	.31	.0010	.0012	.0001	.0033
%RSD	53.45	7.225	726.2	.8401	.8401	25.30	1.212	.3950	13.47
#1	-.0057	.0025	-.0152	17.20	36.80	.0034	.1031	.0175	.0270
#2	-.0127	.0023	.0226	16.99	36.37	.0049	.1013	.0176	.0223

Sample Name: L34674-07 Acquired: 1/11/2017 11:04:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0078	.0122	.0099
Stddev	.0016	.0006	.0014
%RSD	20.04	4.627	14.24
#1	.0067	.0118	.0089
#2	.0089	.0126	.0109

Int. Std.	Y_3710
Units	Cts/S
Avg	12458.
Stddev	78.
%RSD	.62561
#1	12513.
#2	12403.

Sample Name: L34674-08 Acquired: 1/11/2017 11:07:51 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018	.5429	-.0158	.0368	.0329	.0062	-.0104	43.11	.0033
Stddev	.0035	.0333	.0057	.0029	.0005	.0000	.0035	.17	.0006
%RSD	199.1	6.129	36.32	7.882	1.392	.7486	33.73	.4052	17.36
#1	-.0007	.5193	-.0199	.0389	.0326	.0063	-.0079	42.99	.0029
#2	.0043	.5664	-.0118	.0348	.0332	.0062	-.0128	43.24	.0038

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035	.0047	.0150	.0100	-.0011	.3049	.3102	-.0129	3.661
Stddev	.0001	.0022	.0003	.0033	.0031	.0201	.0185	.0025	.038
%RSD	1.452	46.07	1.889	33.25	282.1	6.596	5.972	19.20	1.040
#1	.0036	.0063	.0152	.0123	-.0033	.2907	.2971	-.0147	3.634
#2	.0035	.0032	.0148	.0076	.0011	.3191	.3233	-.0111	3.688

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0181	15.24	.0395	.0081	13.14	.0021	.1630	.0192	16.09
Stddev	.0006	.03	.0006	.0025	.08	.0024	.0152	.0099	.17
%RSD	3.414	.1723	1.447	30.81	.5836	112.8	9.309	51.67	1.038
#1	.0186	15.22	.0390	.0099	13.09	.0004	.1522	.0122	15.97
#2	.0177	15.26	.0399	.0064	13.20	.0038	.1737	.0263	16.21

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0193	.0025	.0373	10.29	22.03	.0121	.1031	.0235	.0112
Stddev	.0185	.0004	.0348	.02	.04	.0090	.0009	.0027	.0012
%RSD	96.02	16.73	93.14	.1865	.1865	73.88	.8637	11.53	10.90
#1	-.0324	.0028	.0127	10.28	22.00	.0058	.1025	.0216	.0120
#2	-.0062	.0022	.0619	10.31	22.06	.0184	.1037	.0254	.0103

Sample Name: L34674-08 Acquired: 1/11/2017 11:07:51 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0002	.0119	.0100
Stddev	.0011	.0001	.0006
%RSD	643.4	1.127	6.505
#1	-.0006	.0120	.0095
#2	.0010	.0118	.0104

Int. Std.	Y_3710
Units	Cts/S
Avg	12567.
Stddev	179.
%RSD	1.4275
#1	12693.
#2	12440.

Sample Name: L34674-09 Acquired: 1/11/2017 11:11:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001	2.267	-.0012	.0885	.0314	.0062	-.0026	25.68	.0032
Stddev	.0017	.010	.0035	.0021	.0003	.0003	.0048	.14	.0003
%RSD	1984.	.4551	279.3	2.349	.9735	4.910	183.1	.5408	10.25
#1	-.0011	2.260	.0012	.0871	.0312	.0064	.0008	25.58	.0035
#2	.0013	2.275	-.0037	.0900	.0317	.0060	-.0061	25.78	.0030

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027	.0098	.0537	.0503	.0056	1.382	1.379	-.0077	3.177
Stddev	.0003	.0013	.0018	.0013	.0067	.004	.008	.0025	.047
%RSD	11.91	13.30	3.365	2.655	119.3	.2798	.6035	32.63	1.485
#1	.0029	.0107	.0524	.0512	.0009	1.380	1.373	-.0095	3.144
#2	.0024	.0089	.0550	.0493	.0103	1.385	1.385	-.0059	3.210

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0303	5.021	.0643	.0104	11.55	.0203	.3005	.0106	3.780
Stddev	.0009	.047	.0004	.0003	.13	.0076	.0307	.0028	.134
%RSD	3.136	.9446	.6594	3.314	1.114	37.38	10.23	26.12	3.546
#1	.0296	4.988	.0640	.0101	11.46	.0257	.2788	.0087	3.685
#2	.0309	5.055	.0646	.0106	11.64	.0150	.3223	.0126	3.874

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0032	.0026	-.0247	14.44	30.91	.0169	.0895	.0646	.0283
Stddev	.0048	.0000	.0366	.13	.27	.0185	.0011	.0008	.0176
%RSD	149.3	.5209	148.1	.8806	.8806	109.5	1.179	1.298	62.20
#1	-.0066	.0026	.0012	14.35	30.72	.0301	.0887	.0640	.0407
#2	.0002	.0026	-.0506	14.53	31.10	.0038	.0902	.0652	.0158

Sample Name: L34674-09 Acquired: 1/11/2017 11:11:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0082	.0422	.0403
Stddev	.0002	.0011	.0017
%RSD	2.532	2.693	4.307
#1	.0084	.0414	.0391
#2	.0081	.0430	.0415

Int. Std.	Y_3710
Units	Cts/S
Avg	12583.
Stddev	409.
%RSD	3.2495
#1	12872.
#2	12294.

Sample Name: L34674-10 Acquired: 1/11/2017 11:14:14 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0016	1.299	-.0057	.1761	.0307	.0061	.0169	25.92	.0034
Stddev	.0016	.009	.0178	.0013	.0002	.0002	.0021	.17	.0004
%RSD	102.0	.6700	312.4	.7452	.5679	2.824	12.26	.6371	10.31
#1	-.0027	1.305	-.0183	.1771	.0308	.0062	.0154	26.03	.0032
#2	-.0004	1.293	.0069	.1752	.0306	.0059	.0184	25.80	.0037

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027	.0097	.0364	.0313	-.0013	.7655	.7654	-.0177	3.749
Stddev	.0001	.0017	.0000	.0047	.0029	.0048	.0022	.0196	.030
%RSD	4.775	17.10	.0838	15.16	214.9	.6333	.2809	110.9	.7927
#1	.0028	.0086	.0364	.0346	.0007	.7689	.7669	-.0316	3.770
#2	.0026	.0109	.0364	.0279	-.0034	.7621	.7639	-.0038	3.728

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0338	4.768	.0868	.0201	10.22	.0237	.2890	.0165	6.155
Stddev	.0005	.046	.0007	.0027	.04	.0005	.0034	.0058	.154
%RSD	1.448	.9657	.7747	13.47	.3876	2.161	1.168	35.50	2.504
#1	.0342	4.736	.0873	.0220	10.25	.0234	.2866	.0123	6.046
#2	.0335	4.801	.0863	.0182	10.19	.0241	.2914	.0206	6.264

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0166	.0025	-.0037	10.61	22.71	.0083	.0770	.0384	.0017
Stddev	.0114	.0001	.0293	.01	.02	.0021	.0000	.0016	.0139
%RSD	68.95	4.774	787.9	.0851	.0851	24.98	.0430	4.098	792.9
#1	-.0247	.0026	-.0244	10.62	22.72	.0068	.0770	.0395	-.0081
#2	-.0085	.0024	.0170	10.60	22.69	.0098	.0769	.0373	.0115

Sample Name: L34674-10 Acquired: 1/11/2017 11:14:14 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0017	.0503	.0493
Stddev	.0048	.0018	.0007
%RSD	286.4	3.510	1.391
#1	-.0017	.0490	.0488
#2	.0051	.0515	.0497

Int. Std.	Y_3710
Units	Cts/S
Avg	12332.
Stddev	139.
%RSD	1.1283
#1	12430.
#2	12233.

Sample Name: L34674-14 Acquired: 1/11/2017 11:17:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0008**	**4.440**	**-.0152**	**.0602**	**.0564**	**.0062**	**.0015**	**26.98**	**.0040**
Stddev	.0033	.058	.0014	.0003	.0002	.0000	.0019	.08	.0002
%RSD	401.4	1.303	9.028	.4529	.3666	.1716	127.4	.2936	5.657
#1	.0015	4.481	-.0143	.0600	.0565	.0062	.0001	27.04	.0038
#2	-.0032	4.399	-.0162	.0604	.0562	.0062	.0029	26.93	.0042

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0033**	**.0075**	**.0372**	**.0324**	**.0036**	**2.396**	**2.374**	**-.0086**	**8.571**
Stddev	.0000	.0002	.0010	.0036	.0003	.029	.023	.0021	.070
%RSD	.6952	2.642	2.640	11.27	9.629	1.204	.9830	24.54	.8177
#1	.0033	.0076	.0379	.0349	.0038	2.416	2.391	-.0101	8.620
#2	.0033	.0073	.0365	.0298	.0033	2.376	2.358	-.0071	8.521

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0663**	**6.554**	**.1430**	**.0726**	**7.051**	**.0146**	**.4926**	**.0136**	**9.389**
Stddev	.0009	.043	.0001	.0016	.022	.0027	.0028	.0178	.208
%RSD	1.326	.6504	.0592	2.220	.3108	18.48	.5683	130.7	2.216
#1	.0669	6.584	.1430	.0737	7.066	.0166	.4906	.0262	9.242
#2	.0657	6.524	.1429	.0714	7.035	.0127	.4945	.0010	9.536

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0055**	**.0030**	**.0112**	**19.96**	**42.72**	**.0205**	**.1247**	**.1429**	**.0053**
Stddev	.0114	.0000	.0015	.16	.35	.0140	.0001	.0015	.0070
%RSD	206.5	.9420	13.09	.8224	.8224	68.24	.0555	1.075	132.7
#1	-.0136	.0030	.0122	20.08	42.96	.0303	.1247	.1418	.0003
#2	.0026	.0030	.0101	19.84	42.47	.0106	.1246	.1440	.0102

Sample Name: L34674-14 Acquired: 1/11/2017 11:17:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0131	.1349	.1337
Stddev	.0007	.0023	.0022
%RSD	5.651	1.669	1.673
#1	.0126	.1333	.1321
#2	.0136	.1365	.1353

Int. Std.	Y_3710
Units	Cts/S
Avg	12559.
Stddev	221.
%RSD	1.7567
#1	12715.
#2	12403.

Sample Name: CCV Acquired: 1/11/2017 11:20:35 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4778	1.009	1.946	.9856	.9700	.9954	.9691	49.97	.9748
Stddev	.0043	.011	.033	.0156	.0028	.0027	.0226	.10	.0125
%RSD	.8973	1.096	1.692	1.588	.2886	.2674	2.337	.1995	1.280
#1	.4808	1.001	1.923	.9745	.9680	.9935	.9531	49.90	.9660
#2	.4747	1.016	1.969	.9967	.9719	.9973	.9852	50.04	.9836
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9701	.9537	.9821	.9670	.9651	.9999	.9952	.9436	9.717
Stddev	.0138	.0130	.0074	.0043	.0015	.0116	.0027	.0400	.007
%RSD	1.425	1.361	.7581	.4429	.1537	1.162	.2745	4.238	.0770
#1	.9604	.9446	.9768	.9640	.9641	.9917	.9971	.9719	9.712
#2	.9799	.9629	.9873	.9701	.9662	1.008	.9933	.9153	9.723
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9661	49.65	.9743	1.014	49.81	1.007	2.525	1.894	25.18
Stddev	.0016	.33	.0012	.013	.11	.013	.003	.021	.31
%RSD	.1678	.6637	.1256	1.241	.2282	1.330	.0983	1.101	1.235
#1	.9650	49.41	.9734	1.005	49.73	.9975	2.527	1.879	24.96
#2	.9673	49.88	.9751	1.023	49.89	1.016	2.523	1.909	25.40
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 11:20:35 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.016**	**.9781**	**1.981**	**9.551**	F **20.44**	**1.004**	**.9674**	**.9841**	**1.962**
Stddev	.015	.0025	.037	.016	.03	.028	.0024	.0024	.006
%RSD	.7582	.2597	1.880	.1660	.1660	2.828	.2497	.2484	.3188
#1	2.005	.9763	1.954	9.563	20.46	.9837	.9657	.9824	1.958
#2	2.027	.9799	2.007	9.540	20.42	1.024	.9691	.9859	1.966
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.9958**	**.9709**	**.9662**
Stddev	.0071	.0169	.0136
%RSD	.7139	1.739	1.409
#1	.9908	.9589	.9566
#2	1.001	.9828	.9758
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**12326.**
Stddev	193.
%RSD	1.5622
#1	12462.
#2	12189.

Sample Name: CCB Acquired: 1/11/2017 11:23:43 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002	.0154	-.0002	.0060	.0041	.0071	-.0081	-.0410	.0046
Stddev	.0003	.0036	.0125	.0042	.0002	.0000	.0104	.0067	.0005
%RSD	108.1	23.29	6966.	70.57	4.078	.6248	128.7	16.27	11.76
#1	.0004	.0179	.0087	.0030	.0043	.0071	-.0007	-.0363	.0050
#2	.0001	.0128	-.0090	.0089	.0040	.0070	-.0154	-.0458	.0042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035	.0058	.0100	.0073	-.0018	-.0016	.0084	.0071	-.0469
Stddev	.0004	.0029	.0025	.0006	.0026	.0098	.0036	.0099	.0064
%RSD	11.25	49.71	25.07	8.892	144.5	602.0	42.78	140.9	13.56
#1	.0033	.0038	.0082	.0068	-.0036	.0053	.0109	.0141	-.0424
#2	.0038	.0078	.0118	.0077	.0000	-.0086	.0058	.0000	-.0514
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005	-.0484	.0018	.0089	.0543	.0028	-.0538	.0246	.0549
Stddev	.0006	.0321	.0006	.0010	.0082	.0012	.0485	.0072	.0414
%RSD	123.7	66.34	32.18	11.05	15.16	41.40	90.09	29.16	75.44
#1	.0009	-.0257	.0022	.0096	.0601	.0037	-.0881	.0296	.0256
#2	.0001	-.0712	.0014	.0082	.0485	.0020	-.0195	.0195	.0841
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 11:23:43 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0220	.0034	-.0176	.0223	.0477	.0119	.0036	.0024	.0168
Stddev	.0100	.0002	.0255	.0001	.0003	.0098	.0002	.0003	.0193
%RSD	45.44	5.078	144.6	.6386	.6386	82.61	5.717	10.85	114.6
#1	-.0149	.0033	-.0356	.0222	.0475	.0188	.0037	.0026	.0305
#2	-.0291	.0035	.0004	.0224	.0480	.0049	.0034	.0022	.0032
Check ?	Chk Pass	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	.0032	.0072	.0033
Stddev	.0006	.0001	.0017
%RSD	18.22	1.626	51.04
#1	.0028	.0073	.0021
#2	.0036	.0071	.0045
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	12314.
Stddev	49.
%RSD	.40077
#1	12349.
#2	12279.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52458	PCN	Nitric acid:	52458	PCN
Hydrochloric acid:	52395	PCN	Hydrochloric acid:	52395	PCN

VERIFIED BY: AEB 1/11/17

NH3-KCL

QC List Type: QC-RFA-NH3-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: icv/b-ccv/b-dup-as
Group ID: WC-G-RFA-NH3-KCL
Method Ref: M350.1
SOP Ref: SOPWC008

WG415949

ACZ Laboratories, Inc

Instrument ID: FIA2
Analyst: gl
ACZ Dept: 37
Create Date: 01/10/2017 12:05
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	PSolid	TSolid	Analysis Date	NNH3KCL	Ammonia (mg/Kg)	Instrument Dilution Factor (units)	Prep Dilution Factor (units)	Dilution
1	WG415949ICV	WI170103-8	So		1				☑				1
2	WG415949ICB	NONE			1				☑				1
3	WG415949LFB	WI161026-1			1				☑				1
4	WG415879PBS	NONE			10				☑				10
5	L34445-01	TP-6_7_9 (2-5)			10	88.3			☑				10
6	L34445-01DUP	NONE			10				☑				10
7	L34445-02	TP-12 (2-4)			10	91.4			☑				10
8	L34445-02AS	WI161026-1			1				☑				10
9	L34445-03	TP-15_16 (2-13)			10	85.8			☑				10
10	L34445-04	TP-20 (1-4)			10	91.3			☑				10
11	L34674-01	SB-06GT (1.5-10)			10	86			☑				10
12	L34674-02	SB-07GT (0-4)			10	88.3			☑				10
13	WG415949CCV1	WI161031-9			1				☑				1
14	WG415949CCB1	NONE			1				☑				1
15	L34674-03	SB-09GT (8-12)			10	87.5			☑				10
16	L34674-04	SB-09GT (18-22)			10	83.9			☑				10
17	L34674-05	SB-12GT (0-27)			10	79.8			☑				10
18	L34674-06	SB-13AL (0-25)			10	90.1			☑				10
19	L34674-07	SB-14AL (0-15)			10	83.6			☑				10
20	L34674-07DUP	NONE			1				☑				10
21	L34674-08	SB-14AL (15-35)			10	82.7			☑				10
22	L34674-08AS	WI161026-1			1				☑				10

Report Comments:

Internal Comments

AREV: gl 1/11/17
Initials, Date

SREV: BSu 1/12/17
Initials, Date

ACZ Laboratories, Inc.
WET CHEM INSTRUMENT DATA REVIEW CHECKLIST

AREV: 91
Date: 1-11-17

SREV: BJ
Date: 1/12/17

Instrument ID: FIA2

Work Group: 415949
Sample Type: NH3-KCl
Analysis Date: 1-10-17
Analyst: 91

	Yes	No	N/A
1) Does the instrument calibration meet the specified method criteria? (r or $r^2 \geq 0.995$)	✓		
2) If applicable, was sample pH at log-in receipt and/or analysis within method criteria?			✓
3) Are all of the QC critera listed in LIMS within specified limits?	✓		
4) If applicable, was a passing PQV indcluded in the WG?			✓
5) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
6) Was sample-analysis completed within the holding time?	✓		
7) Are all dilution factors correctly calculated and uploaded? (Soil, Sludges, Water)	✓		
8) Are dilutions in the appropriate range? (explain if "B" or "U" reported for sample)	✓		
9) Are all applicable qualifiers transferred from bench sheet to LIMS?	✓		
10) Is a current standard/reagent sheet attached to the workgroup?	✓		
11) For soil/sludge analyses: Reviewed raw data for sample o-cals and sample concentrations < (-3xMDL).			✓
12) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Continuing Calibration? – Calibration WG: –

Prep WG#: 415879 Disposable Vessel Lot#*: A102948 S4

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action

Comments:

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

NH3-KCL

QC List Type: QC-RFA-NH3-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: icv/b-ccv/b-dup-as
Group ID: WC-G-RFA-NH3-KCL
Method Ref: M350.1
SOP Ref: SOPWC008

WG415949

ACZ Laboratories, Inc

Instrument ID: FIA2
Analyst:
ACZ Dept: 37
Create Date: 01/10/2017 12:05
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	PSolid	TSolid	Analysis Date	NNH3KCL	Ammonia (mg/Kg)	Instrument Dilution Factor (units)	Prep Dilution Factor (units)	Dilution
23	L34674-09	SB-15AL (0-25)	So		10	93			✓				10
24	L34674-10	SB-15AL (25-50)			10	93.3			✓				10
25	WG415949CCV2	WI161031-9			1				✓				1
26	WG415949CCB2	NONE			1				✓				1
27	L34674-14	SB-09GT (8-12-DUPLIC			10	87.7			✓				10
28	WG415949CCV3	WI161031-9							✓				
29	WG415949CCB3	NONE							✓				

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

KCL

WG415879

ACZ Laboratories, Inc

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415879PBS	NONE	<2000		01/09/17 11:30	0	100	10	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/09/17 11:46	10	100	10	
3	L34445-01DUP	NONE	<2000		01/09/17 12:02	10	100	10	
4	L34445-02	TP-12 (2-4)	<2000		01/09/17 12:18	10	100	10	
5	L34445-03	TP-15_16 (2-13)	<2000		01/09/17 12:35	10	100	10	
6	L34445-04	TP-20 (1-4)	<2000		01/09/17 12:51	10	100	10	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/09/17 13:07	10	100	10	
8	L34674-02	SB-07GT (0-4)	<2000		01/09/17 13:23	10	100	10	
9	L34674-03	SB-09GT (8-12)	<2000		01/09/17 13:40	10	100	10	
10	L34674-04	SB-09GT (18-22)	<2000		01/09/17 13:56	10	100	10	
11	L34674-05	SB-12GT (0-27)	<2000		01/09/17 14:12	10	100	10	
12	L34674-06	SB-13AL (0-25)	<2000		01/09/17 14:28	10	100	10	
13	L34674-07	SB-14AL (0-15)	<2000		01/09/17 14:45	10	100	10	
14	L34674-08	SB-14AL (15-35)	<2000		01/09/17 15:01	10	100	10	
15	L34674-09	SB-15AL (0-25)	<2000		01/09/17 15:17	10	100	10	
16	L34674-10	SB-15AL (25-50)	<2000		01/09/17 15:33	10	100	10	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/09/17 15:50	10	100	10	

R

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ LABORATORIES, INC
2773 Downhill Drive
Steamboat Springs, CO 80487

WET CHEMISTRY INSTRUMENT REAGENTS INFORMATION

Instrument: LACHAT

Parameter: AMMONIA

Instrument Reagents

	SCN	Prep by:	Expiration Date:
1) Alkaline Donor *made monthly	WIR161228-4	spl	1/28/2017
2) DCIC Reagent *made daily	WIR170110-3	spl	1/10/2017
3) Buffer Solution *made monthly	WIR161219-3	spl	1/19/2017
4) Salicylate-Nitroprusside *made weekly	WIR170110-2	spl	1/17/2017
5) Carrier 0.4% H2SO4	PCN52237	spl	1/9/2018

All reagents prepared according to SOP

Author: wcins

Date : 1/10/2017

Original Run Filename: OM_1-10-2017_12-25-10PM.OMN Created: 1/10/2017 12:25:10 PM
Original Run Author's Signature: [wcins]
Current Run Filename: wg415949.omn Last Modified: 1/10/2017 1:24:03 PM
Current Run Author's Signature: [wcins]
Description: 10-115-01-4-F

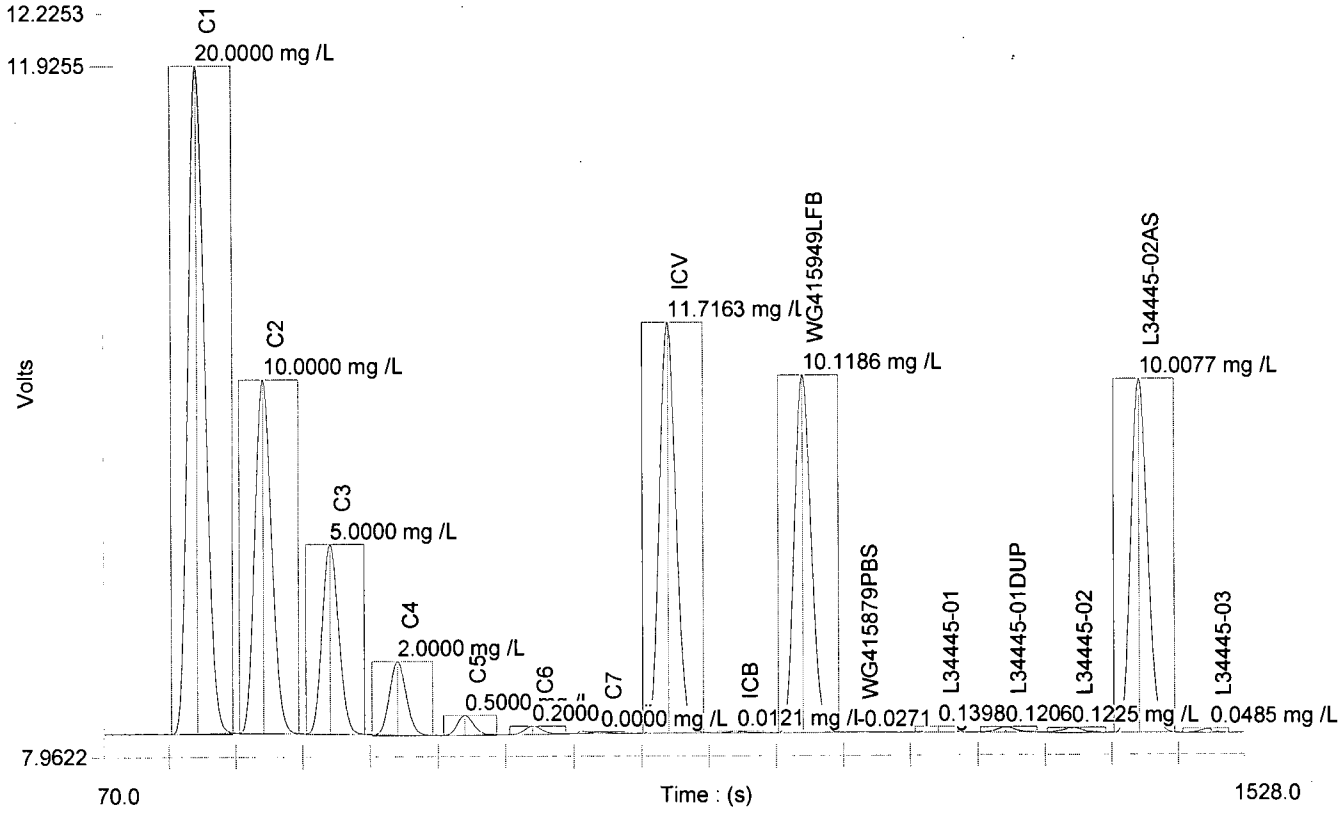
Sample	Cup No.	Channel 1 N-NH3 Conc. (mg /L)	Area (V.s)	Detection Time	MDF
C1	S1	20.0000	94.8752	1/10/2017@12:26:22 PM	
C2	S2	10.0000	49.5799	1/10/2017@12:27:47 PM	
C3	S3	5.0000	26.2909	1/10/2017@12:29:12 PM	
C4	S4	2.0000	10.3152	1/10/2017@12:30:38 PM	
C5	S5	0.5000	2.7409	1/10/2017@12:32:04 PM	
C6	S6	0.2000	1.1876	1/10/2017@12:33:31 PM	
C7	S7	0.0000	0.2712	1/10/2017@12:34:58 PM	
ICV	S8	11.7163	57.8708	1/10/2017@12:36:25 PM	
	Known Conc:	12.0000			
		DQM Test: > + Percent Relative Difference			
	Result:	-2.4 < 10.0			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Percent Relative Difference			
	Result:	-2.4 < 10.0			
	Message	QC PASSED			
	Action	Continue			
	Calibration:	Table/Fig. : 1			
ICB	S7	0.0121	0.2521	1/10/2017@12:37:52 PM	
	Known Conc:	0.0000			
		DQM Test: > + Concentration Limit			
	Result:	0.0121 < 0.0500			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Concentration Limit			
	Result:	0.0121 > -0.1500			
	Message	Pass			
	Action				
WG415949LFB	1	10.1186	50.4092	1/10/2017@12:39:18 PM	1.00
WG415879PBS	2	-0.0271	0.0463	1/10/2017@12:40:45 PM	10.00
L34445-01	3	0.1398	0.9220	1/10/2017@12:42:10 PM	10.00
L34445-01DUP	4	0.1206	0.8215	1/10/2017@12:43:36 PM	10.00
L34445-02	5	0.1225	0.8316	1/10/2017@12:45:02 PM	10.00
L34445-02AS	6	10.0077	49.8868	1/10/2017@12:46:28 PM	10.00
L34445-03	7	0.0485	0.4432	1/10/2017@12:47:53 PM	10.00
L34445-04	8	0.0837	0.6279	1/10/2017@12:49:19 PM	10.00
L34674-01	9	0.1201	0.8187	1/10/2017@12:50:44 PM	10.00
L34674-02	10	0.1217	0.8270	1/10/2017@12:52:09 PM	10.00
CCV	S2	9.7032	48.4501	1/10/2017@12:53:34 PM	
	Known Conc:	10.0000			
		DQM Test: > + Percent Relative Difference			
	Result:	-3.0 < 10.0			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Percent Relative Difference			
	Result:	-3.0 < 10.0			
	Message	QC PASSED			
	Action	Continue			
CCB	S7	0.0162	0.2737	1/10/2017@12:55:01 PM	
	Known Conc:	0.0000			
		DQM Test: > + Concentration Limit			
	Result:	0.0162 < 0.0500			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Concentration Limit			
	Result:	0.0162 > -0.1500			
	Message	Pass			

	Action				
L34674-03	11	0.0652	0.5308	1/10/2017@12:56:26 PM	10.00
L34674-04	12	0.1396	0.9211	1/10/2017@12:57:51 PM	10.00
L34674-05	13	0.1464	0.9565	1/10/2017@12:59:15 PM	10.00
L34674-06	14	0.0869	0.6450	1/10/2017@1:00:40 PM	10.00
L34674-07	15	0.0855	0.6376	1/10/2017@1:02:04 PM	10.00
L34674-07DUP	16	0.0864	0.6420	1/10/2017@1:03:31 PM	10.00
L34674-08	17	0.1242	0.8405	1/10/2017@1:04:57 PM	10.00
L34674-08AS	18	10.1444	50.5304	1/10/2017@1:06:24 PM	10.00
L34674-09	19	0.2829	1.6714	1/10/2017@1:07:50 PM	10.00
L34674-10	20	0.1134	0.7835	1/10/2017@1:09:16 PM	10.00
CCV	S2	9.6302	48.1051	1/10/2017@1:10:41 PM	
	Known Conc:	10.0000			
		DQM Test: > + Percent Relative Difference			
	Result:	-3.7 < 10.0			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Percent Relative Difference			
	Result:	-3.7 < 10.0			
	Message	QC PASSED			
	Action	Continue			
CCB	S7	0.0234	0.3118	1/10/2017@1:12:07 PM	
	Known Conc:	0.0000			
		DQM Test: > + Concentration Limit			
	Result:	0.0234 < 0.0500			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Concentration Limit			
	Result:	0.0234 > -0.1500			
	Message	Pass			
	Action				
L34674-14	21	0.0604	0.5059	1/10/2017@1:13:33 PM	10.00
CCV	S2	9.3243	46.6565	1/10/2017@1:18:32 PM	
	Known Conc:	10.0000			
		DQM Test: > + Percent Relative Difference			
	Result:	-6.8 < 10.0			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Percent Relative Difference			
	Result:	-6.8 < 10.0			
	Message	QC PASSED			
	Action	Continue			
CCB	S7	0.0493	0.4478	1/10/2017@1:19:59 PM	
	Known Conc:	0.0000			
		DQM Test: > + Concentration Limit			
	Result:	0.0493 < 0.0500			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Concentration Limit			
	Result:	0.0493 > -0.1500			
	Message	Pass			
	Action				

Author: wcins

Date : 1/10/2017

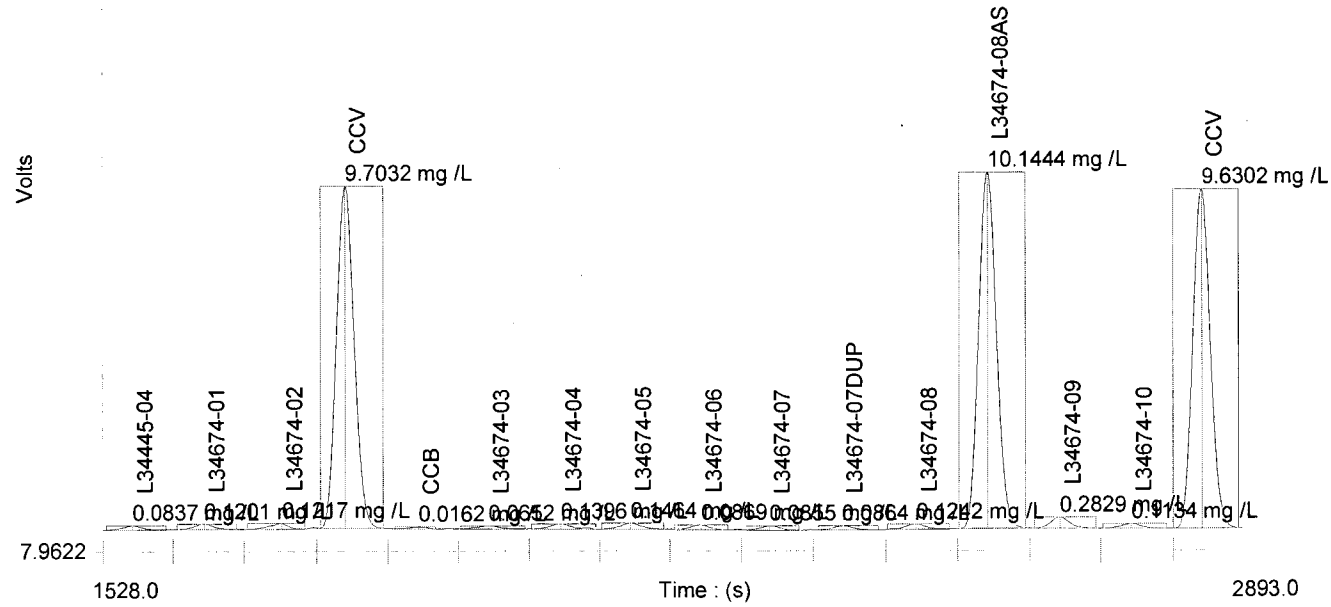
Channel 1 (N-Nh3) - Set: 1 / 3



Author: wcins

Date : 1/10/2017

Channel 1 (N-Nh3) - Set: 2 / 3



Author: wcins

Date : 1/10/2017

Channel 1 (N-Nh3) - Set: 3 / 3

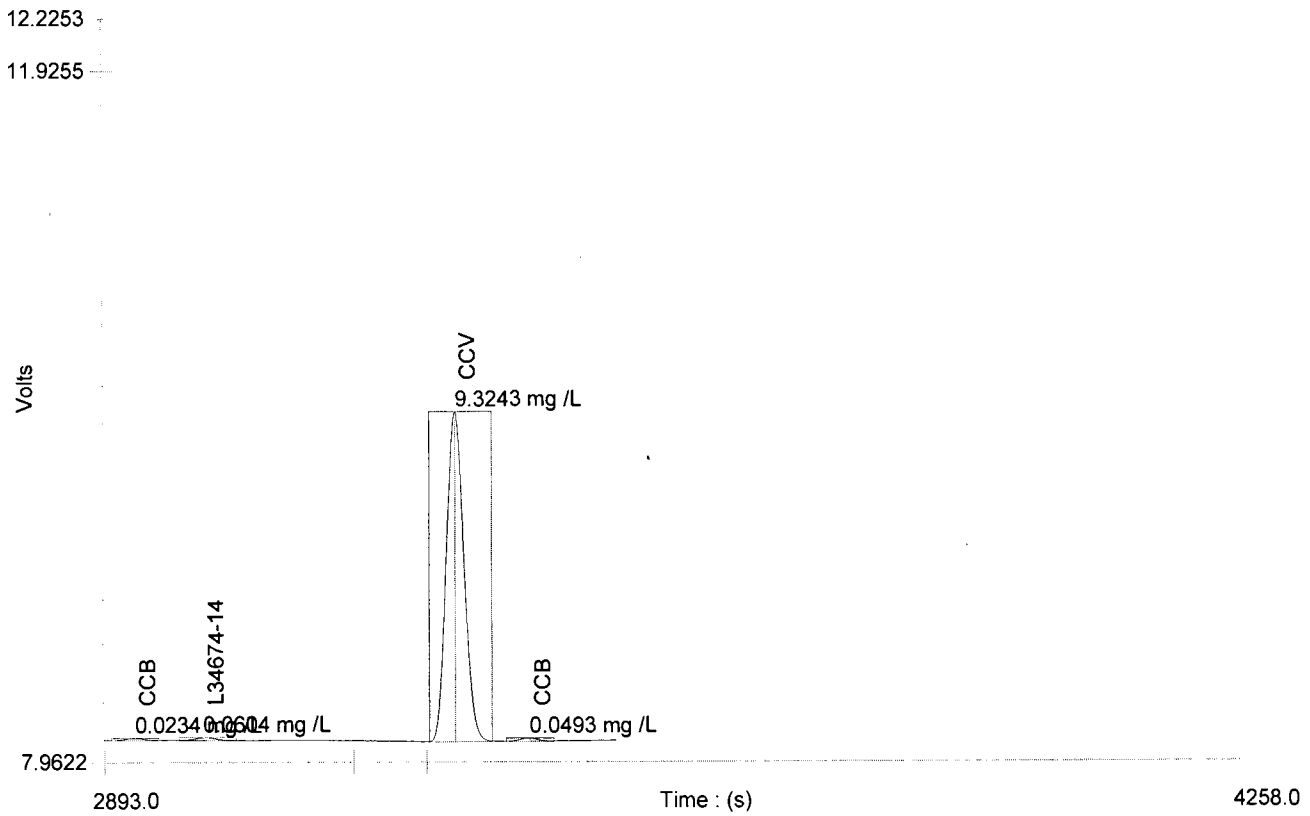
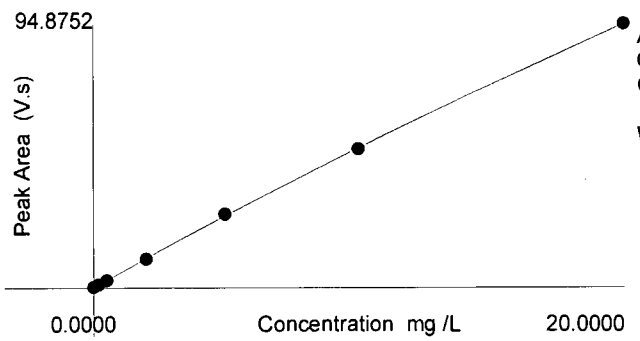


Table : 1 (N-NH3)

	Known Conc. (mg /L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (mg /L)	Detection Date	Detection Time
1	20.0000	1	94.8752	3.8281	0.0	0.0	20.0005	1/10/2017	12:26:22 PM
2	10.0000	1	49.5799	2.0207	0.0	0.7	9.9426	1/10/2017	12:27:47 PM
3	5.0000	1	26.2909	1.0845	0.0	-2.4	5.1212	1/10/2017	12:29:12 PM
4	2.0000	1	10.3152	0.4211	0.0	2.0	1.9513	1/10/2017	12:30:38 PM
5	0.5000	1	2.7409	0.1119	0.0	2.0	0.4875	1/10/2017	12:32:04 PM
6	0.2000	1	1.1876	0.0470	0.0	4.0	0.1905	1/10/2017	12:33:31 PM
7	0.0000	1	0.2712	0.0107			0.0157	1/10/2017	12:34:58 PM

Figure : 1 (N-NH3)



Area = - 0.0241 * Conc^2 + 5.2144 * Conc + 0.1958
Conc = 2.1913e-4 * Area^2 + 0.1904 * Area - 0.0360
Correlation Coefficient (r) = 0.99999

Weighting : 1/x

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415949

Date Reported: 12-Jan-17
Run ID: R1491346
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: FIA2

WG415949ICV

Tag: Measured: 1/10/2017 12:36:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	11.72	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	98	1		%	++	0.1	0.5			

WG415949ICB

Tag: Measured: 1/10/2017 12:37:52 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		1	U	mg/L	++	0.1	0.5			

WG415949LFB

Tag: Measured: 1/10/2017 12:39:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	10.12	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	101	1		%	++	0.1	0.5			

WG415879PBS

Tag: Measured: 1/10/2017 12:40:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		10	U	mg/Kg	++	1	5			

L34445-01

Tag: Measured: 1/10/2017 12:42:10 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34445-01DUP

Tag: Measured: 1/10/2017 12:43:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	1.2	10	B	mg/Kg	++	1	5			
SREV	AMMONIA	RPD	18	10		%	++	1	5		RA	

L34445-02

Tag: Measured: 1/10/2017 12:45:02 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34445-02AS

Tag: Measured: 1/10/2017 12:46:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	100.1	10		mg/Kg	++	1	5			
SREV	AMMONIA	REC	99	10		%	++	1	5			

L34445-03

Tag: Measured: 1/10/2017 12:47:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34445-04

Tag: Measured: 1/10/2017 12:49:19 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34674-01

Tag: Measured: 1/10/2017 12:50:44 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-02

Tag: Measured: 1/10/2017 12:52:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

WG415949CCV1

Tag: Measured: 1/10/2017 12:53:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	9.7	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	97	1		%	++	0.1	0.5			

WG415949CCB1

Tag: Measured: 1/10/2017 12:55:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		1	U	mg/L	++	0.1	0.5			

L34674-03

Tag: Measured: 1/10/2017 12:56:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34674-04

Tag: Measured: 1/10/2017 12:57:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-05

Tag: Measured: 1/10/2017 12:59:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-06

Tag: Measured: 1/10/2017 1:00:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34674-07

Tag: Measured: 1/10/2017 1:02:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34674-07DUP

Tag: Measured: 1/10/2017 1:03:31 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		10	U	mg/Kg	++	1	5			
SREV	AMMONIA	RPD	0	10		%	++	1	5		RA	

L34674-08

Tag: Measured: 1/10/2017 1:04:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-08AS

Tag: Measured: 1/10/2017 1:06:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	101.4	10		mg/Kg	++	1	5			
SREV	AMMONIA	REC	100	10		%	++	1	5			

L34674-09

Tag: Measured: 1/10/2017 1:07:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	3	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-10

Tag: Measured: 1/10/2017 1:09:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

WG415949CCV2

Tag: Measured: 1/10/2017 1:10:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	9.63	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	96	1		%	++	0.1	0.5			

WG415949CCB2

Tag: Measured: 1/10/2017 1:12:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		1	U	mg/L	++	0.1	0.5			

L34674-14

Tag: Measured: 1/10/2017 1:13:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

WG415949CCV3

Tag: Measured: 1/10/2017 1:18:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	9.32	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	93	1		%	++	0.1	0.5			

WG415949CCB3

Tag: Measured: 1/10/2017 1:19:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		1	U	mg/L	++	0.1	0.5			

N-NO3NO2-KCL

QC List Type: QC-RFA-NO3NO2-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NO3NO2-KCL
QC Ref: WC-RFA-D-SOL
Group ID: WC-G-RFA-NO3NO2-KCL
Method Ref: M353.2
SOP Ref: SOPWC016

WG415988

ACZ Laboratories, Inc

Instrument ID: FIA2
Analyst: PJD
ACZ Dept: 37
Create Date: 01/10/2017 18:42
Start Date/Time: 1/10/17
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep	Dil	NO2KCL	NO3NO2KCL	Nitrite (mg/Kg)	Nitrate/Nitrite (mg/Kg)	pH Screen	Chlorine Screen	Dilution	Comments
1	WG415988ICV	WI161209-3				1	✓	✓					1	
2	WG415988ICB	NONE				1	✓	✓					1	
3	WG415988LFB	WI170104-22				1	✓	✓					1	
4	WG415879PBS	NONE	w			10	✓	✓			7	–	10	
5	L34445-01	TP-6_7_9 (2-5)				10	✓	✓			7	–	10	
6	L34445-01DUP	NONE				10	✓	✓			7	–	10	
7	L34445-02	TP-12 (2-4)				10	✓	✓			7	–	10	
8	L34445-02AS	WI170104-22				1	✓	✓			7	–	10	
9	L34445-03	TP-15_16 (2-13)				10	✓	✓			7	–	10	
10	L34445-04	TP-20 (1-4)				10	✓	✓			7	–	10	
11	L34674-01	SB-06GT (1.5-10)				10	✓	✓			7	–	10	
12	L34674-02	SB-07GT (0-4)				10	✓	✓			7	–	10	
13	WG415988CCV1	WI170104-24				1	✓	✓					1	
14	WG415988CCB1	NONE				1	✓	✓					1	
15	L34674-03	SB-09GT (8-12)	w			10	✓	✓			7	–	10	
16	L34674-04	SB-09GT (18-22)				10	✓	✓			7	–	10	
17	L34674-05	SB-12GT (0-27)				10	✓	✓			7	–	10	
18	L34674-06	SB-13AL (0-25)				10	✓	✓			7	–	10	
19	L34674-07	SB-14AL (0-15)				10	✓	✓			7	–	10	
20	L34674-08	SB-14AL (15-35)				10	✓	✓			7	–	10	
21	L34674-09	SB-15AL (0-25)				10	✓	✓			7	–	10	

Report Comments:

AREV: PJD 1/12/17
Initials, Date

Internal Comments

L34445-1701201627

SREV: SN 1/12/17
Initials, Date

ACZ Laboratories, Inc.
WET CHEM INSTRUMENT DATA REVIEW CHECKLIST

AREV: PSJ
Date: 1/12/17

SREV: JRV
Date: 1/12/17

Instrument ID FIA2

Work Group: 415988
Sample Type: NO3 NO2-KCL
Analysis Date: 1/10/17
Analyst: PSJ

	Yes	No	N/A
1) Does the instrument calibration meet the specified method criteria? (r or $r^2 \geq 0.995$)	X		
2) If applicable, was sample pH at log-in receipt and/or analysis within method criteria?	X		
3) Are all of the QC critera listed in LIMS within specified limits?		X	
4) If applicable, was a passing PQV indcluded in the WG?			X
5) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	X		
6) Was sample-analysis completed within the holding time?	X		
7) Are all dilution factors correctly calculated and uploaded? (Soil, Sludges, Water)	X		
8) Are dilutions in the appropriate range? (explain if "B" or "U" reported for sample)	X		
9) Are all applicable qualifiers transferred from bench sheet to LIMS?	X		
10) Is a current standard/reagent sheet attached to the workgroup?	X		
11) For soil/sludge analyses: Reviewed raw data for sample o-cals and sample concentrations < (-3xMDL).			X
12) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Continuing Calibration? no Calibration WG: —

Prep WG#: 415879 Disposable Vessel Lot#*: FA2FAW8115, A1c3064-63

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
445-01	Dup <10X MDL	RA
445-02	IAS high recovery 111%	M1

Comments:

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

N-NO3NO2-KCL

QC List Type: QC-RFA-NO3NO2-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NO3NO2-KCL
QC Ref: WC-RFA-D-SOL
Group ID: WC-G-RFA-NO3NO2-KCL
Method Ref: M353.2
SOP Ref: SOPWC016

WG415988

ACZ Laboratories, Inc

Instrument ID: FIA2
Analyst:
ACZ Dept: 37
Create Date: 01/10/2017 18:42
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	NO2KCL	NO3NO2KCL	Nitrite (mg/Kg)	Nitrate/Nitrite (mg/Kg)	pH Screen	Chlorine Screen	Dilution	Comments
22	L34674-10	SB-15AL (25-50)	w		10	☑	☑			7	–	10	
23	L34674-14	SB-09GT (8-12-DUPLIC	↓		10	☑	☑			7	–	10	
24	WG415988CCV2	WI170104-24			1	☑	☑					1	
25	WG415988CCB2	NONE			1	☑	☑					1	

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L34445-1701201627

KCL

WG415879

ACZ Laboratories, Inc

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415879PBS	NONE	<2000		01/09/17 11:30	0	100	10	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/09/17 11:46	10	100	10	
3	L34445-01DUP	NONE	<2000		01/09/17 12:02	10	100	10	
4	L34445-02	TP-12 (2-4)	<2000		01/09/17 12:18	10	100	10	
5	L34445-03	TP-15_16 (2-13)	<2000		01/09/17 12:35	10	100	10	
6	L34445-04	TP-20 (1-4)	<2000		01/09/17 12:51	10	100	10	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/09/17 13:07	10	100	10	
8	L34674-02	SB-07GT (0-4)	<2000		01/09/17 13:23	10	100	10	
9	L34674-03	SB-09GT (8-12)	<2000		01/09/17 13:40	10	100	10	
10	L34674-04	SB-09GT (18-22)	<2000		01/09/17 13:56	10	100	10	
11	L34674-05	SB-12GT (0-27)	<2000		01/09/17 14:12	10	100	10	
12	L34674-06	SB-13AL (0-25)	<2000		01/09/17 14:28	10	100	10	
13	L34674-07	SB-14AL (0-15)	<2000		01/09/17 14:45	10	100	10	
14	L34674-08	SB-14AL (15-35)	<2000		01/09/17 15:01	10	100	10	
15	L34674-09	SB-15AL (0-25)	<2000		01/09/17 15:17	10	100	10	
16	L34674-10	SB-15AL (25-50)	<2000		01/09/17 15:33	10	100	10	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/09/17 15:50	10	100	10	

Report Comments:

Internal Comments

L34445-1701201627

AREV: Bcc 1-9-17
Initials, Date

SREV: BPO 1/10/17
Initials, Date

1/9/2017 3:53:59 PM 122316

ACZ LABORATORIES, INC
2773 Downhill Drive
Steamboat Springs, CO 80487

WET CHEMISTRY INSTRUMENT REAGENTS INFORMATION

Instrument: Lachat

Parameter: NO_3NO_2 Dissolved / Yellow / Sludge / KCL / MWMT / WE / 1312

Standard Preparation & Documentation

Instrument Reagents	SCN/PCN	Prepped by:	Expiration Date:
1) Stock Ammonium Chloride EDTA Buffer	WIR170104-6	pjb	1/4/2018
2) NO3NO2 and NO2 Color Reagent	WIR161220-3	pjb	3/20/2017
3) NH4OH (yellows and KCls only)	PCN40337		7/16/2017
4) HCl (yellows only)	PCN48881		2/28/2020

***Refer to SOP for standard and reagent prep.**

Author: wcins

Date : 1/10/2017

Original Run Filename: OM_1-10-2017_08-43-38PM.OMN Created: 1/10/2017 8:43:38 PM
Original Run Author's Signature: [wcins]
Current Run Filename: wg415988.omn Last Modified: 1/10/2017 10:32:27 PM
Current Run Author's Signature: [wcins]
Description: 10-117-07-1-C

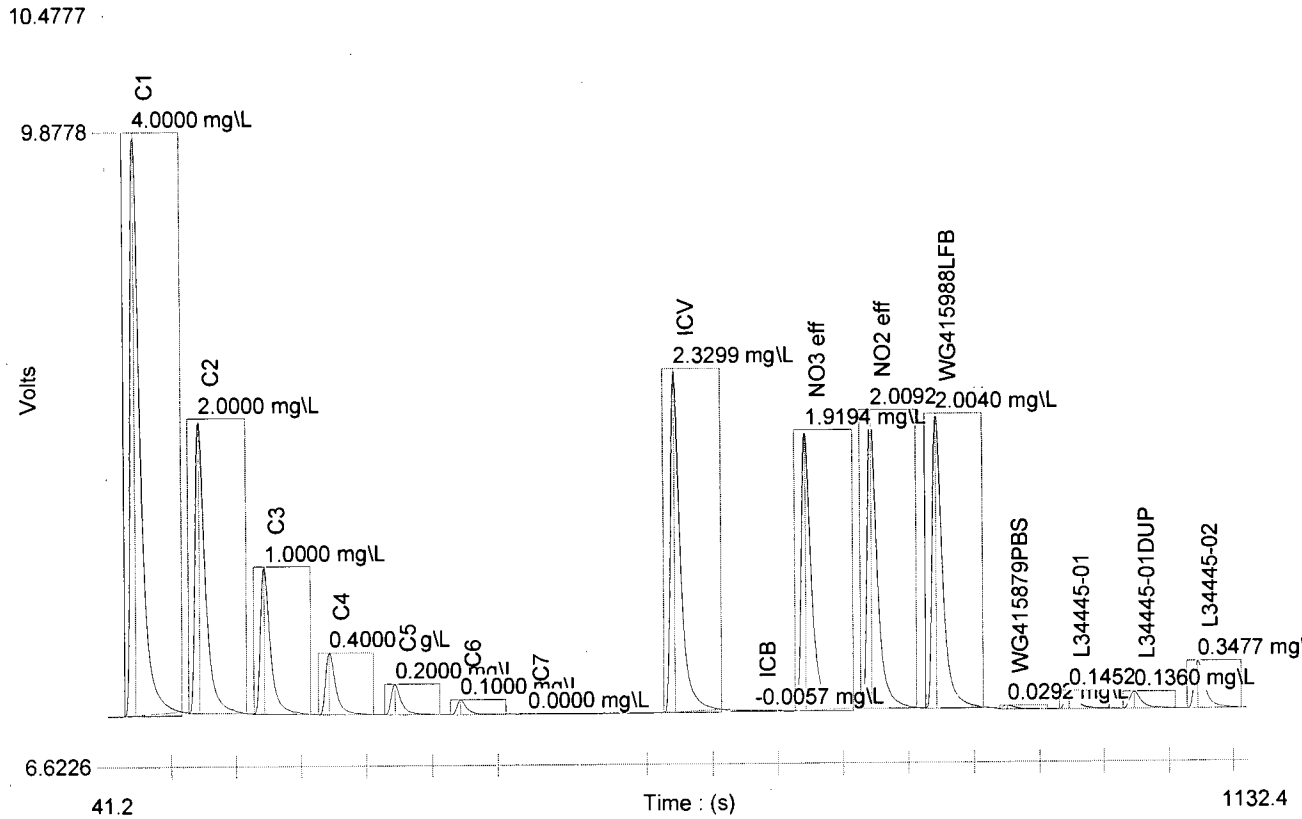
Sample	Cup No.	Channel 1 NO3NO2 Conc. (mg\L)	Channel 1 NO3NO2 Area (V.s)	Channel 2 NO2 Conc. (mg\L)	Channel 2 NO2 Area (V.s)	Detection Time	MDF
C1	S1	4.0000	33.5326	2.0000	14.9516	1/10/2017@8:44:40 PM	
C2	S2	2.0000	16.6139	1.0000	7.5657	1/10/2017@8:45:56 PM	
C3	S3	1.0000	8.2459	0.5000	3.8139	1/10/2017@8:47:11 PM	
C4	S4	0.4000	3.4529	0.2000	1.6275	1/10/2017@8:48:26 PM	
C5	S5	0.2000	1.7454	0.1000	0.8382	1/10/2017@8:49:42 PM	
C6	S6	0.1000	0.8750	0.0500	0.4248	1/10/2017@8:50:58 PM	
C7	S7	0.0000	0.0363	0.0000	-0.0089	1/10/2017@8:52:15 PM	
DQM Test: Minimum Correlation Coefficient							
	Result:	0.99997 > 0.99500		0.99996 > 0.99500			
	Message	Cal Passed		Cal Passed			
	Action	Continue		Continue			
ICV	S8	2.3299	19.4933	0.5906	4.4761	1/10/2017@8:55:08 PM	
	Known Conc:	2.4161		0.6089			
DQM Test: > + Percent Relative Difference							
	Result:	-3.6 < 10.0		-3.0 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Percent Relative Difference							
	Result:	-3.6 < 10.0		-3.0 < 10.0			
	Message	Pass		QC PASSED			
	Action			Continue			
	Calibration:	Table/Fig. : 1		Table/Fig. : 2			
ICB	S7	-0.0057	-0.0262	-0.0055	0.0324	1/10/2017@8:56:24 PM	
	Known Conc:	0.0000		0.0000			
DQM Test: > + Concentration Limit							
	Result:	-0.0057 < 0.0200		-0.0055 < 0.0100			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Concentration Limit							
	Result:	-0.0057 > -0.0600		-0.0055 > -0.0300			
	Message	Pass		Pass			
	Action						
NO3 eff	1	1.9194	16.0624	-0.0048	0.0375	1/10/2017@8:57:40 PM	1.00
NO2 eff	2	2.0092	16.8131	2.0031	15.0049	1/10/2017@8:58:57 PM	1.00
WG415988LFB	3	2.0040	16.7700	1.0195	7.6731	1/10/2017@9:00:12 PM	1.00
WG415879PBS	4	0.0292	0.2649	0.0333	0.3215	1/10/2017@9:01:28 PM	10.00
L34445-01	5	0.1452	1.2349	0.0632	0.5444	1/10/2017@9:02:44 PM	10.00
L34445-01DUP	6	0.1360	1.1580	0.0613	0.5308	1/10/2017@9:03:58 PM	10.00
L34445-02	7	0.3477	2.9270	0.0760	0.6397	1/10/2017@9:05:14 PM	10.00
L34445-02AS	8	2.3014	19.2551	1.1069	8.3246	1/10/2017@9:06:29 PM	10.00
L34445-03	9	0.1562	1.3269	0.0660	0.5657	1/10/2017@9:07:45 PM	10.00
L34445-04	10	0.1223	1.0436	0.0732	0.6192	1/10/2017@9:08:59 PM	10.00
CCV	S2	1.9548	16.3585	1.0008	7.5338	1/10/2017@9:10:14 PM	
	Known Conc:	2.0000		1.0000			
DQM Test: > + Percent Relative Difference							
	Result:	-2.3 < 10.0		0.1 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Percent Relative Difference							
	Result:	-2.3 < 10.0		0.1 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
CCB	S7	0.0052	0.0650	-0.0021	0.0576	1/10/2017@9:13:06 PM	
	Known Conc:	0.0000		0.0000			
DQM Test: > + Concentration Limit							
	Result:	0.0052 < 0.0200		-0.0021 < 0.0100			
	Message	QC PASSED		QC PASSED			

	Action	Continue		Continue			
DQM Test: < - Concentration Limit							
	Result:	0.0052 > -0.0600		-0.0021 > -0.0300			
	Message	Pass		Pass			
	Action						
L34674-01	11	0.3266	2.7512	0.0742	0.6264	1/10/2017@9:14:21 PM	10.00
L34674-02	12	0.1296	1.1043	0.0794	0.6653	1/10/2017@9:15:35 PM	10.00
L34674-03	13	0.1281	1.0922	0.0727	0.6156	1/10/2017@9:16:50 PM	10.00
L34674-04	14	0.1312	1.1176	0.0606	0.5250	1/10/2017@9:18:04 PM	10.00
L34674-05	15	0.3639	3.0627	0.0801	0.6709	1/10/2017@9:19:19 PM	10.00
L34674-06	16	0.0976	0.8373	0.0695	0.5916	1/10/2017@9:20:35 PM	10.00
L34674-07	17	0.0867	0.7461	0.0680	0.5805	1/10/2017@9:21:51 PM	10.00
L34674-08	18	0.1011	0.8659	0.0661	0.5660	1/10/2017@9:23:07 PM	10.00
L34674-09	19	0.0838	0.7216	0.0733	0.6197	1/10/2017@9:24:23 PM	10.00
L34674-10	20	0.0797	0.6873	0.0728	0.6163	1/10/2017@9:25:39 PM	10.00
CCV	S2	1.9361	16.2027	0.9954	7.4935	1/10/2017@9:26:54 PM	
	Known Conc:	2.0000		1.0000			
DQM Test: > + Percent Relative Difference							
	Result:	-3.2 < 10.0		-0.5 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Percent Relative Difference							
	Result:	-3.2 < 10.0		-0.5 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
CCB	S7	0.0032	0.0476	-0.0060	0.0284	1/10/2017@9:29:46 PM	
	Known Conc:	0.0000		0.0000			
DQM Test: > + Concentration Limit							
	Result:	0.0032 < 0.0200		-0.0060 < 0.0100			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Concentration Limit							
	Result:	0.0032 > -0.0600		-0.0060 > -0.0300			
	Message	Pass		Pass			
	Action						
L34674-14	21	0.1218	1.0388	0.0637	0.5483	1/10/2017@9:31:02 PM	10.00
CCV	S2	1.9352	16.1947	1.0065	7.5764	1/10/2017@9:33:52 PM	
	Known Conc:	2.0000		1.0000			
DQM Test: > + Percent Relative Difference							
	Result:	-3.2 < 10.0		0.7 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Percent Relative Difference							
	Result:	-3.2 < 10.0		0.7 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
CCB	S7	-5.3601e-5	0.0208	-0.0054	0.0333	1/10/2017@9:36:44 PM	
	Known Conc:	0.0000		0.0000			
DQM Test: > + Concentration Limit							
	Result:	-5.3601e-5 < 0.0200		-0.0054 < 0.0100			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Concentration Limit							
	Result:	-5.3601e-5 > -0.0600		-0.0054 > -0.0300			
	Message	Pass		Pass			
	Action						

Author: wcins

Date : 1/10/2017

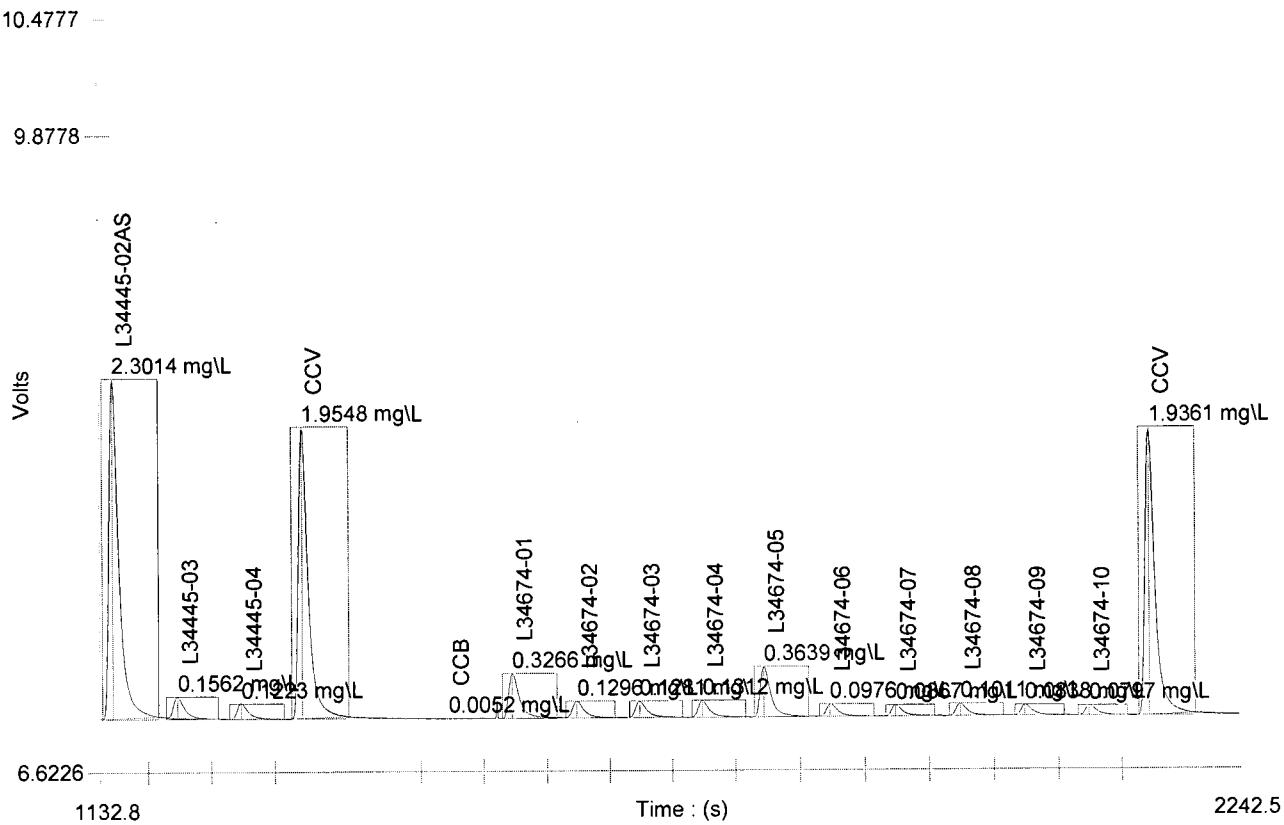
Channel 1 (NO3NO2) - Set: 1 / 3



Author: wcins

Date : 1/10/2017

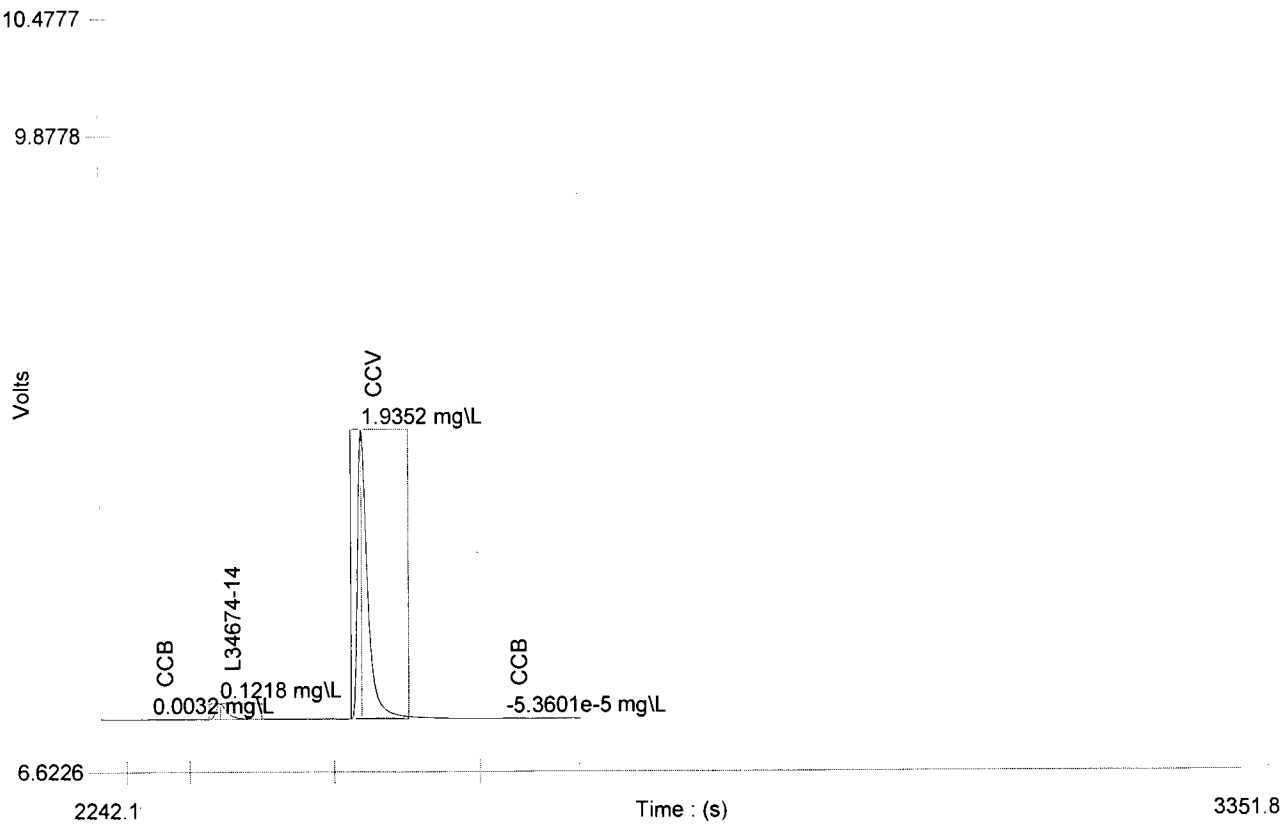
Channel 1 (NO3NO2) - Set: 2 / 3



Author: wcins

Date : 1/10/2017

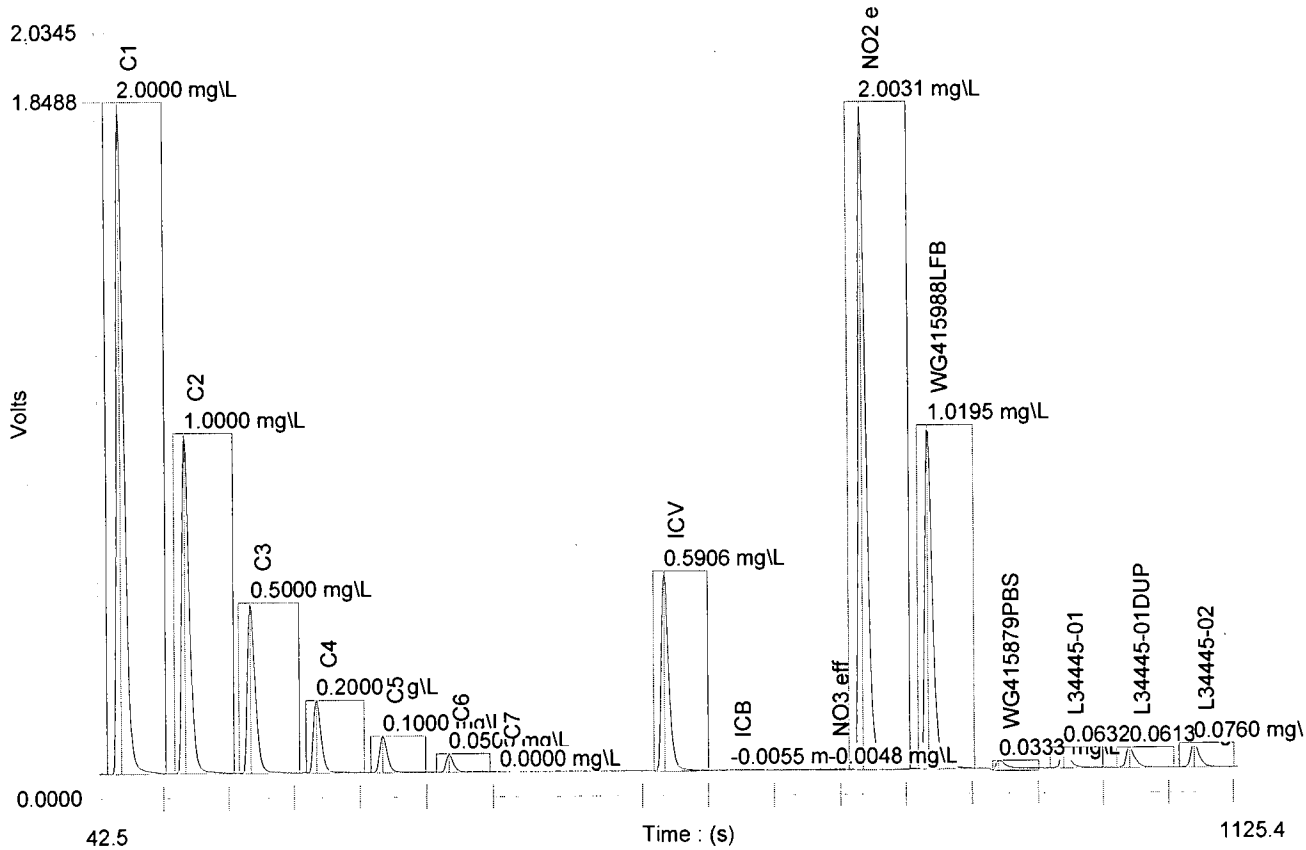
Channel 1 (NO3NO2) - Set: 3 / 3



Author: wcins

Date : 1/10/2017

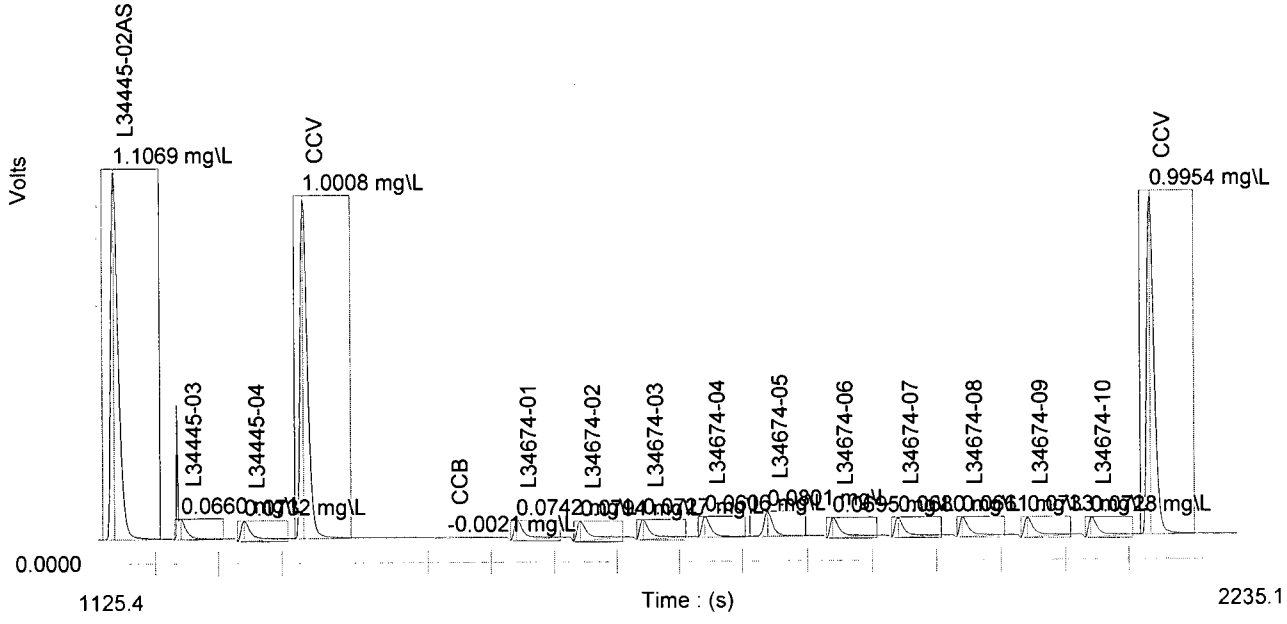
Channel 2 (NO2) - Set: 1 / 3



Author: wcins

Date : 1/10/2017

Channel 2 (NO2) - Set: 2 / 3



Author: wcins

Date : 1/10/2017

Channel 2 (NO2) - Set: 3 / 3

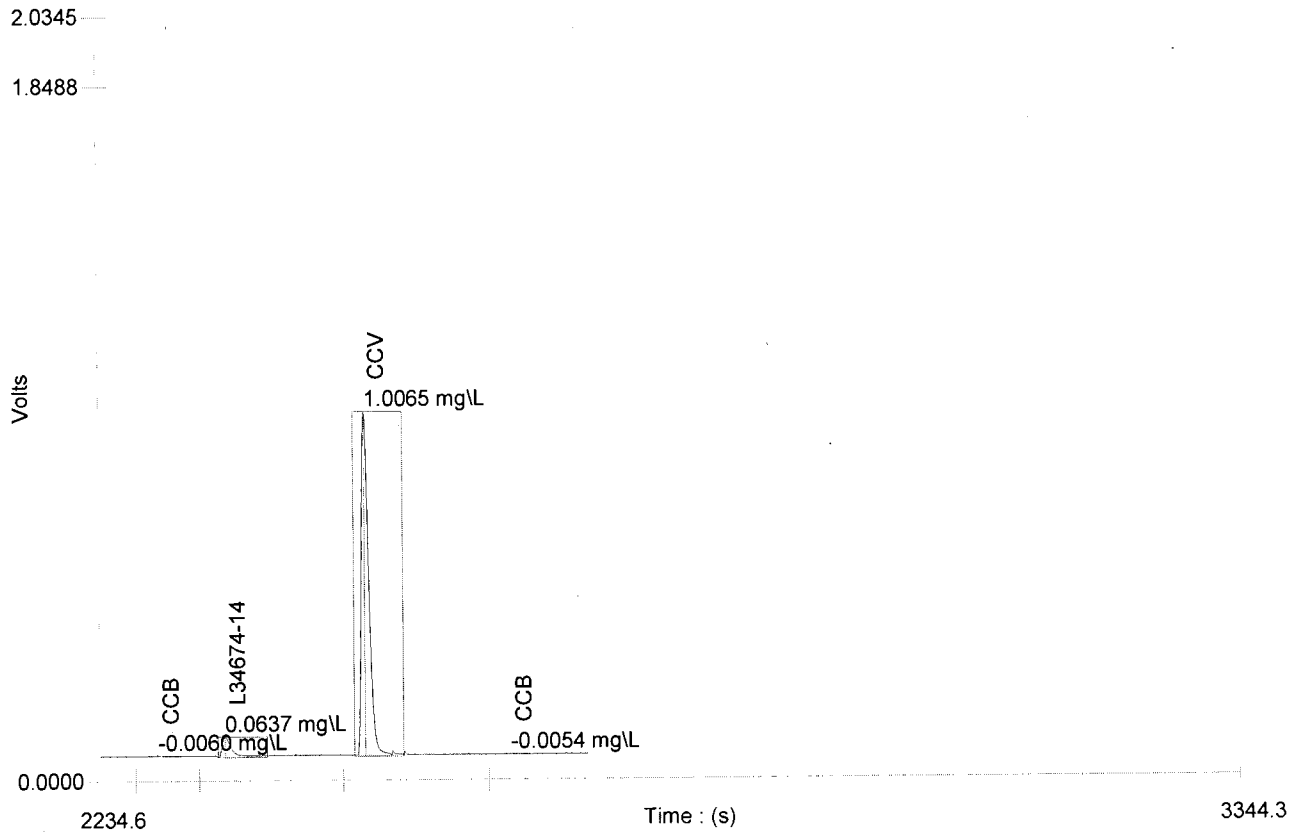


Table : 1 (NO3NO2)

	Known Conc. (mg\L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (mg\L)	Detection Date	Detection Time
1	4.0000	1	33.5326	2.9869	0.0	-0.2	4.0097	1/10/2017	8:44:40 PM
2	2.0000	1	16.6139	1.5014	0.0	0.7	1.9853	1/10/2017	8:45:56 PM
3	1.0000	1	8.2459	0.7516	0.0	1.6	0.9841	1/10/2017	8:47:11 PM
4	0.4000	1	3.4529	0.3161	0.0	-2.6	0.4106	1/10/2017	8:48:26 PM
5	0.2000	1	1.7454	0.1582	0.0	-3.1	0.2063	1/10/2017	8:49:42 PM
6	0.1000	1	0.8750	0.0765	0.0	-2.0	0.1022	1/10/2017	8:50:58 PM
7	0.0000	1	0.0363	0.0030			0.0018	1/10/2017	8:52:15 PM

Figure : 1 (NO3NO2)

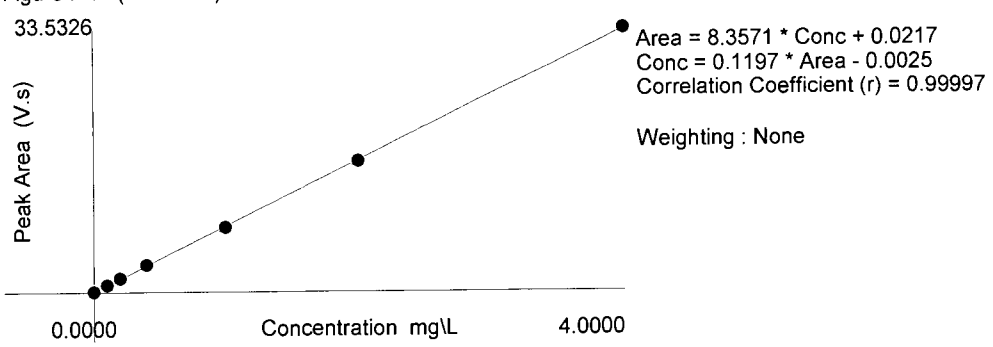
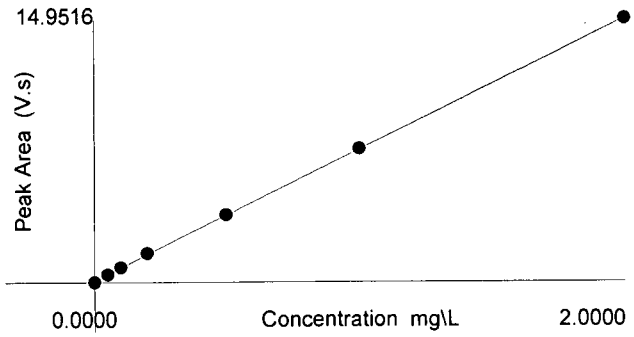


Table : 2 (NO2)

	Known Conc. (mg\L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (mg\L)	Detection Date	Detection Time
1	2.0000	1	14.9516	1.7836	0.0	0.2	1.9960	1/10/2017	8:44:42 PM
2	1.0000	1	7.5657	0.9016	0.0	-0.5	1.0051	1/10/2017	8:45:57 PM
3	0.5000	1	3.8139	0.4521	0.0	-0.4	0.5018	1/10/2017	8:47:13 PM
4	0.2000	1	1.6275	0.1930	0.0	-4.0	0.2085	1/10/2017	8:48:28 PM
5	0.1000	1	0.8382	0.0973	0.0	-2.3	0.1026	1/10/2017	8:49:44 PM
6	0.0500	1	0.4248	0.0495	0.0	4.9	0.0471	1/10/2017	8:51:00 PM
7	0.0000	1	-0.0089	-0.0012			-0.0111	1/10/2017	8:52:17 PM

Figure : 2 (NO2)



Area = 7.4535 * Conc + 0.0738
Conc = 0.1342 * Area - 0.0099
Correlation Coefficient (r) = 0.99996

Weighting : None

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415988

Date Reported: 12-Jan-17
Run ID: R1491300
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: FIA2

WG415988ICV

Tag: Measured: 1/10/2017 8:55:10 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	2.33	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	96	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	0.59	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	97	1		%	++	0.1	0.5			

WG415988ICB

Tag: Measured: 1/10/2017 8:56:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		1	U	mg/L	++	0.2	0.5			
SREV	NITRITE	FOUND		1	U	mg/L	++	0.1	0.5			

WG415988LFB

Tag: Measured: 1/10/2017 9:00:14 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	2	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	100	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	1.02	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	102	1		%	++	0.1	0.5			

WG415879PBS

Tag: Measured: 1/10/2017 9:01:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		10	U	mg/Kg	++	2	5			
SREV	NITRITE	FOUND		10	U	mg/Kg	++	1	5			

L34445-01

Tag: Measured: 1/10/2017 9:02:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34445-01DUP

Tag: Measured: 1/10/2017 9:04:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		10	U	mg/Kg	++	2	5			
SREV	NITRATE/NITRITE	RPD	0	10		%	++	2	5		RA	
SREV	NITRITE	FOUND		10	U	mg/Kg	++	1	5			
SREV	NITRITE	RPD	0	10		%	++	1	5		RA	

L34445-02

Tag: Measured: 1/10/2017 9:05:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL	3	10	B	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34445-02AS

Tag: Measured: 1/10/2017 9:06:31 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	23	10		mg/Kg	++	2	5			
SREV	NITRATE/NITRITE	REC	100	10		%	++	2	5			
SREV	NITRITE	FOUND	11.1	10		mg/Kg	++	1	5			
SREV	NITRITE	REC	111	10		%	ALRT	1	5		M1	

L34445-03

Tag: Measured: 1/10/2017 9:07:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34445-04

Tag: Measured: 1/10/2017 9:09:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

WG415988CCV1

Tag: Measured: 1/10/2017 9:10:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	1.95	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	98	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	1	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	100	1		%	++	0.1	0.5			

WG415988CCB1

Tag: Measured: 1/10/2017 9:13:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		1	U	mg/L	++	0.2	0.5			
SREV	NITRITE	FOUND		1	U	mg/L	++	0.1	0.5			

L34674-01

Tag: Measured: 1/10/2017 9:14:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL	3	10	B	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-02

Tag: Measured: 1/10/2017 9:15:37 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-03

Tag: Measured: 1/10/2017 9:16:52 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-04

Tag: Measured: 1/10/2017 9:18:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-05

Tag: Measured: 1/10/2017 9:19:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL	4	10	B	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-06

Tag: Measured: 1/10/2017 9:20:37 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-07

Tag: Measured: 1/10/2017 9:21:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-08

Tag: Measured: 1/10/2017 9:23:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-09

Tag: Measured: 1/10/2017 9:24:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-10

Tag: Measured: 1/10/2017 9:25:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

WG415988CCV2

Tag: Measured: 1/10/2017 9:26:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	1.94	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	97	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	1	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	100	1		%	++	0.1	0.5			

WG415988CCB2

Tag: Measured: 1/10/2017 9:29:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		1	U	mg/L	++	0.2	0.5			
SREV	NITRITE	FOUND		1	U	mg/L	++	0.1	0.5			

L34674-14

Tag: Measured: 1/10/2017 9:31:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

WG415988CCV3

Tag:

Measured: 1/10/2017 9:33:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	1.94	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	97	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	1.01	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	101	1		%	++	0.1	0.5			

WG415988CCB3

Tag:

Measured: 1/10/2017 9:36:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		1	U	mg/L	++	0.2	0.5			
SREV	NITRITE	FOUND		1	U	mg/L	++	0.1	0.5			

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415785

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:11
Start Date/Time: 01/06/2017 10:00
End Date/Time: 01/10/2017 13:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
1	WG415785PBS	NONE	<2000		01/06/17 10:00	0	7.5	5	5	50			1.308	7.328	1.308	.00	100	
2	WG415785LCSS1	PCN52516	<2000		01/06/17 14:44	0.5	7.5	5	5	50		100					100	
3	WG415785LCSSD1	PCN52516	<2000		01/06/17 19:28	0.5	7.5	5	5	50		100					100	
4	WG415785LCSS2	PCN52708	<2000		01/07/17 0:12	0.5	7.5	5	5	50		100					100	
5	WG415785LCSSD2	PCN52708	<2000		01/07/17 4:57	0.5	7.5	5	5	50		100					100	
6	L34445-01	TP-6_7_9 (2-5)	<2000		01/07/17 9:41	0.5	7.5	5	5	50			1.311	7.362	7.282	98.68	101	
7	L34445-02	TP-12 (2-4)	<2000		01/07/17 14:25	0.5	7.5	5	5	50			1.305	7.369	7.288	98.66	101	
8	L34445-03	TP-15_16 (2-13)	<2000		01/07/17 19:09	0.5	7.5	5	5	50			1.301	7.338	7.27	98.87	101	
9	L34445-04	TP-20 (1-4)	<2000		01/07/17 23:54	0.5	7.5	5	5	50			1.299	7.412	7.32	98.50	102	
10	L34445-04MS	II161222-8	<2000		01/08/17 4:38	0.5	7.5	5	5	50	0.5	98.5	1.298	7.463	7.376	98.59	102	
11	L34445-04MSD	II161222-8	<2000		01/08/17 9:22	0.5	7.5	5	5	50	0.5	98.5					102	
12	L34446-01	SB-01_02GT (1.5-6.5)	<2000		01/08/17 14:07	0.5	7.5	5	5	50			1.299	7.209	7.093	98.04	102	
13	L34446-02	SB-07GT (4-21)	<2000		01/08/17 18:51	0.5	7.5	5	5	50			1.297	7.296	7.257	99.35	101	
14	L34446-03	SB-03_TP-3 (1-5)	<2000		01/08/17 23:35	0.5	7.5	5	5	50			1.303	7.31	7.053	95.72	104	
15	L34446-04	TP-6 (7-10)	<2000		01/09/17 4:19	0.5	7.5	5	5	50			1.307	7.126	7.025	98.26	102	
16	L34446-05	TP-8 (3.5-13)	<2000		01/09/17 9:04	0.5	7.5	5	5	50			1.311	7.856	7.776	98.78	101	
17	L34446-06	TP-9 (7-14)	<2000		01/09/17 13:48	0.5	7.5	5	5	50			1.307	7.175	7.117	99.01	101	
18	L34446-07	TP-12 (7-9)	<2000		01/09/17 18:32	0.5	7.5	5	5	50			1.308	7.17	7.07	98.29	102	
19	L34446-07MS	MS161205-2	<2000		01/09/17 23:17	0.5	7.5	5	5	50	0.25	98.29					102	
20	L34446-07MSD	MS161205-2	<2000		01/10/17 4:01	0.5	7.5	5	5	50	0.25	98.29					102	
21	L34446-08	TP-14 (3-7)	<2000		01/10/17 8:45	0.5	7.5	5	5	50			1.301	7.549	7.48	98.90	101	

Report Comments: _____

Internal Comments _____

AREV: BCC 1.10.17
Initials, Date

SREV: FRD 1/12/17
Initials, Date

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415785

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:11
Start Date/Time: 01/06/2017 10:00
End Date/Time: 01/10/2017 13:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
22	L34446-09	TP-20 (12-14)	<2000		01/10/17 13:29	0.5	7.5	5	5	50			1.299	7.932	7.865	98.99	101	

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34445-04MS	ICP Spike
L34445-04MSD	ICP Spike
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-07MS	ICPMS Spike
L34446-07MSD	ICPMS Spike
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1.10.17

Approved: BPD
Date: 1/12/17

Analyst: BCC

Workgroup: 415785

Analysis Date: 116 · 1/10/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?	X		
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
50 mL Digestion Tubes	1512329-6C-6253-QD	
HNO3	52065	6.24.18
H2O2	52628; 52627	9.30.18
HCl	52599	5.13.19

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSQ010.07.14.08

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415785

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:11
Start Date/Time: 1/6/17 10:00a
End Date/Time: 1/10/17 1:30p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
1	WG415785PBS	NONE				0	7.5	5	5	50			1.308	7.328	1.308			
2	WG415785LCSS1	PCN52516				0.500												
3	WG415785LCSSD1	PCN52516				0.500												
4	WG415785LCSS2	PCN52708				0.500												
5	WG415785LCSSD2	PCN52708				0.500							1.611	7.362				
6	L34445-01	TP-6_7_9 (2-5)	<2000			0.500							1.311	~~7.632~~	7.282			
7	L34445-02	TP-12 (2-4)				0.500							1.305	7.369	7.288			
8	L34445-03	TP-15_16 (2-13)				0.500							1.301	7.338	7.270			
9	L34445-04	TP-20 (1-4)				0.500							1.299	7.412	7.320			
10	L34445-04MS	II161222-8				0.500					0.500		1.298	7.463	~~7.376~~	7.316	1/6/17	AD QC
11	L34445-04MSD	II161222-8				0.500					0.500							
12	L34446-01	SB-01_02GT (1.5-6.5)				0.500							1.299	7.209	7.093			
13	L34446-02	SB-07GT (4-21)				0.500							1.297	7.296	7.257			
14	L34446-03	SB-03_TP-3 (1-5)				0.500							1.303	7.310	7.053			
15	L34446-04	TP-6 (7-10)				0.500							1.307	7.126	7.025			
16	L34446-05	TP-8 (3.5-13)				0.500							1.311	7.552	7.776			
17	L34446-06	TP-9 (7-14)				0.500							1.307	7.175	7.117			
18	L34446-07	TP-12 (7-9)				0.500							1.308	7.170	7.070			
19	L34446-07MS	MS161205-2				0.500					0.250							
20	L34446-07MSD	MS161205-2				0.500					0.250							
21	L34446-08	TP-14 (3-7)				0.500							1.361	7.549	7.480			

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415785

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/06/2017 9:11
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
22	L34446-09	TP-20 (12-14)	L2000			0.520	7.5	5	5	50			1.299	7.932	7.865			

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34445-04MS	ICP Spike
L34445-04MSD	ICP Spike
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-07MS	ICPMS Spike
L34446-07MSD	ICPMS Spike
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415785

Date Reported:	12-Jan-17
Run ID:	R1491203
Date Analyzed:	06-Jan-17
ICAL Workgroup:	
Instrument ID:	SOILSPREP

WG415785PBS

Tag: Measured: 1/6/2017 10:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	PREP	0	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	1.308	100		g	++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	7.328	100		g	++					
SREV	PAN WEIGHT	PREP	1.308	100		g	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	100		g	++					

WG415785LCSS1

Tag: Measured: 1/6/2017 2:44:17 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415785LCSSD

Tag: Measured: 1/6/2017 7:28:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415785LCSS2

Tag: Measured: 1/7/2017 12:12:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415785LCSSD

Tag:

Measured: 1/7/2017 4:57:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

L34445-01

Tag:

Measured: 1/7/2017 9:41:25 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.68	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.282	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.362	101		g	++					
SREV	PAN WEIGHT	X-3050	1.311	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34445-02

Tag:

Measured: 1/7/2017 2:25:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.66	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.288	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.369	101		g	++					
SREV	PAN WEIGHT	X-3050	1.305	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34445-03

Tag:

Measured: 1/7/2017 7:09:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.87	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.27	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.338	101		g	++					
SREV	PAN WEIGHT	X-3050	1.301	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34445-04

Tag:

Measured: 1/7/2017 11:54:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.5	102		%	++					
SREV	DILUTION	X-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.32	102		g	++					
SREV	H2O2	X-3050	5	102		mL	++					
SREV	HCL	X-3050	5	102		mL	++					
SREV	HNO3	X-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.412	102		g	++					
SREV	PAN WEIGHT	X-3050	1.299	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	102		g	++					

L34445-04MS

Tag:

Measured: 1/8/2017 4:38:33 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.5	102		%	++					
SREV	AIR DRY SOLIDS	PREP	98.59	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	7.376	102		g	++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	7.463	102		g	++					
SREV	PAN WEIGHT	PREP	1.298	102		g	++					
SREV	SCN VOLUME	PREP	0.5	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34445-04MSD

Tag:

Measured: 1/8/2017 9:22:50 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.5	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.5	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34446-01

Tag:

Measured: 1/8/2017 2:07:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.04	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.093	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.209	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.299	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L34446-02

Tag:

Measured: 1/8/2017 6:51:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.35	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.257	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.296	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.297	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34446-03

Tag:

Measured: 1/8/2017 11:35:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	95.72	104		%	++					
SREV	DILUTION	X-MS-3050	104	104			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.053	104		g	++					
SREV	H2O2	X-MS-3050	5	104		mL	++					
SREV	HCL	X-MS-3050	5	104		mL	++					
SREV	HNO3	X-MS-3050	7.5	104		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.31	104		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.303	104		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	104		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	104		g	++					

L34446-04

Tag:

Measured: 1/9/2017 4:19:58 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.26	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.025	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.126	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.307	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L34446-05

Tag:

Measured: 1/9/2017 9:04:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.78	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.776	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.856	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.311	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34446-06

Tag:

Measured: 1/9/2017 1:48:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.01	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.117	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.175	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.307	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34446-07

Tag:

Measured: 1/9/2017 6:32:49 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.29	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.07	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.17	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.308	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L34446-07MS

Tag:

Measured: 1/9/2017 11:17:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.29	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.25	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34446-07MSD

Tag:

Measured: 1/10/2017 4:01:23 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.29	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.25	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34446-08

Tag:

Measured: 1/10/2017 8:45:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.9	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.48	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.549	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.301	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34446-09 **Tag:** **Measured:** **1/10/2017 1:29:57 PM**

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.99	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.865	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.932	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.299	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

Organic Matter

QC List Type: QC-ORGMAT
QCListMatClass: SOLID
Bench Sheet List: I-ORGMAT
QC Ref: PBS-LCSS-DUP-CCV-CCB
Group ID: SA-G-ORGMAT
Method Ref: USDA
SOP Ref: SOPSO049

WG416430

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/18/2017 13:25
Start Date/Time: 01/17/2017 13:30
End Date/Time: 01/18/2017 14:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ORGMAT	Organic Matter (%)	Sample Weight (g)	Calc	Dilution	Comments
1	WG416430PBS	NONE	<250		01/17/17 13:30	✔	0	0.5	0	1	
2	WG416430LCSS	PCN45409	<250		01/17/17 14:40	✔	1.998	0.5	0	1	
3	L34445-01	TP-6_7_9 (2-5)	<250		01/17/17 15:50	✔	2.357	0.5	0	1	
4	L34445-01DUP	NONE	<250		01/17/17 17:00	✔	2.351	0.5	0	1	
5	L34445-02	TP-12 (2-4)	<250		01/17/17 18:10	✔	2.975	0.5	0	1	
6	L34445-03	TP-15_16 (2-13)	<250		01/17/17 19:20	✔	1.223	0.5	0	1	
7	L34445-04	TP-20 (1-4)	<250		01/17/17 20:30	✔	2.86	0.5	0	1	
8	L34674-01	SB-06GT (1.5-10)	<250		01/17/17 21:40	✔	2.828	0.5	0	1	
9	L34674-02	SB-07GT (0-4)	<250		01/17/17 22:50	✔	3.04	0.5	0	1	
10	L34674-03	SB-09GT (8-12)	<250		01/18/17 0:00	✔	0.792	0.5	0	1	
11	WG416430CCB1	NONE	<250		01/18/17 1:10	✔	0	0.5	0	1	
12	WG416430CCV1	PCN45434	<250		01/18/17 2:20	✔	2.098	0.5	0	1	
13	L34674-04	SB-09GT (18-22)	<250		01/18/17 3:30	✔	0.565	0.5	0	1	
14	L34674-05	SB-12GT (0-27)	<250		01/18/17 4:40	✔	2.435	0.5	0	1	
15	L34674-06	SB-13AL (0-25)	<250		01/18/17 5:50	✔	2.794	0.5	0	1	
16	L34674-07	SB-14AL (0-15)	<250		01/18/17 7:00	✔	0.461	0.5	0	1	
17	L34674-08	SB-14AL (15-35)	<250		01/18/17 8:10	✔	0.4	0.5	0	1	
18	L34674-09	SB-15AL (0-25)	<250		01/18/17 9:20	✔	1.4	0.5	0	1	
19	L34674-10	SB-15AL (25-50)	<250		01/18/17 10:30	✔	1.274	0.5	0	1	
20	L34674-14	SB-09GT (8-12-DUPLIC	<250		01/18/17 11:40	✔	0.914	0.5	0	1	
21	WG416430CCB2	NONE	<250		01/18/17 12:50	✔	0	0.5	0	1	
22	WG416430CCV2	PCN45434	<250		01/18/17 14:00	✔	2.103	0.5	0	1	

Report Comments: _____

Internal Comments _____

AREV: BCC 1·18·17
Initials, Date

SREV: BD 1/19/17
Initials, Date

Organic Matter

QC List Type: QC-ORGMAT
QCListMatClass: SOLID
Bench Sheet List: I-ORGMAT
QC Ref: PBS-LCSS-DUP-CCV-CCB
Group ID: SA-G-ORGMAT
Method Ref: USDA
SOP Ref: SOPSO049

WG416430

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/18/2017 13:25
Start Date/Time: 01/17/2017 13:30
End Date/Time: 01/18/2017 14:00

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34445-1701201627

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-18-17

Approved: TPRD
Date: 1/19/17

Analyst: BCC

Workgroup: 1166430

Analysis Date: 1/17 - 1/18/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?			X
8. Is the appropriate spike in the computer-designated line?			X
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
$K_2Cr_2O_7$	SI170117-1	1-17-18
H_2SO_4	52471	6-23-19

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Organic Matter

QC List Type: QC-ORGMAT
QCListMatClass: SOLID
Bench Sheet List: I-ORGMAT
QC Ref: PBS-LCSS-DUP-CCV-CCB
Group ID: SA-G-ORGMAT
Method Ref: USDA
SOP Ref: SOPSO049

WG416430

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: Bcc
ACZ Dept: 25
Create Date: 01/18/2017 13:25
Start Date/Time: 1/17/17 1:30
End Date/Time: 1/18/17 2:00p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ORGMAT	Organic Matter (%)	Sample Weight (g)	Calc	Dilution	Comments
1	WG416430PBS	NONE				✔	0		0	1	
2	WG416430LCSS	PCN45409				✔	1.998		0	1	
3	L34445-01	TP-6_7_9 (2-5)	C250			✔	2.357	0.500	0	1	
4	L34445-01DUP	NONE				✔	2.351	0.500	0	1	
5	L34445-02	TP-12 (2-4)				✔	2.975	0.500	0	1	
6	L34445-03	TP-15_16 (2-13)				✔	1.223	0.500	0	1	
7	L34445-04	TP-20 (1-4)				✔	2.860	0.500	0	1	
8	L34674-01	SB-06GT (1.5-10)				✔	2.828	0.500	0	1	
9	L34674-02	SB-07GT (0-4)				✔	3.040	0.500	0	1	
10	L34674-03	SB-09GT (8-12)				✔	0.792	0.500	0	1	
11	WG416430CCB1	NONE				✔	0		0	1	
12	WG416430CCV1	PCN45434			Bcc 1/18/17	✔	~~2.210~~ 2.098		0	1	
13	L34674-04	SB-09GT (18-22)	C250			✔	0.565	0.500	0	1	
14	L34674-05	SB-12GT (0-27)				✔	2.435	0.500	0	1	
15	L34674-06	SB-13AL (0-25)				✔	2.794	0.500	0	1	
16	L34674-07	SB-14AL (0-15)				✔	0.461	0.500	0	1	
17	L34674-08	SB-14AL (15-35)				✔	0.400	0.500	0	1	
18	L34674-09	SB-15AL (0-25)				✔	1.400	0.500	0	1	
19	L34674-10	SB-15AL (25-50)				✔	1.224	0.500	0	1	
20	L34674-14	SB-09GT (8-12-DUPLIC				✔	0.914	0.500	0	1	
21	WG416430CCB2	NONE				✔	0		0	1	
22	WG416430CCV2	PCN45434				✔	~~2.244~~ Bcc 1/18/17 2.103		0	1	

Report Comments: CCV Re-checked – values passing after re check
OK'd by technical director

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34445-1701201627

Organic Matter

QC List Type: QC-ORGMAT
QCListMatClass: SOLID
Bench Sheet List: I-ORGMAT
QC Ref: PBS-LCSS-DUP-CCV-CCB
Group ID: SA-G-ORGMAT
Method Ref: USDA
SOP Ref: SOPSO049

WG416430

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/18/2017 13:25
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416430

Date Reported: 19-Jan-17
Run ID: R1493786
Date Analyzed: 17-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

WG416430PBS

Tag: Measured: 1/17/2017 1:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND		1	U	%	++	0.3	1			

WG416430LCSS

Tag: Measured: 1/17/2017 2:40:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND	2	1		%	++	0.3	1			
SREV	ORGANIC MATTER	REC	100	1		%	++	0.3	1			

L34445-01

Tag: Measured: 1/17/2017 3:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.4	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34445-01DUP

Tag: Measured: 1/17/2017 5:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND	2.35	1		%	++	0.3	1			
SREV	ORGANIC MATTER	RPD	2	1		%	++	0.3	1		RA	

L34445-02

Tag: Measured: 1/17/2017 6:10:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	3.0	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34445-03

Tag: Measured: 1/17/2017 7:20:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	1.2	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34445-04

Tag: Measured: 1/17/2017 8:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.9	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-01

Tag: Measured: 1/17/2017 9:40:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.8	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-02

Tag: Measured: 1/17/2017 10:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	3.0	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-03

Tag: Measured: 1/18/2017

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.8	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

WG416430CCB1

Tag: Measured: 1/18/2017 1:10:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND		1	U	%	++	0.3	1			

WG416430CCV1

Tag: Measured: 1/18/2017 2:20:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND	2.1	1		%	++	0.3	1			
SREV	ORGANIC MATTER	REC	105	1		%	++	0.3	1			

L34674-04

Tag: Measured: 1/18/2017 3:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.6	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-05

Tag: Measured: 1/18/2017 4:40:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.4	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-06

Tag: Measured: 1/18/2017 5:50:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.8	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-07

Tag: Measured: 1/18/2017 7:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.5	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-08

Tag: Measured: 1/18/2017 8:10:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.4	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-09

Tag: Measured: 1/18/2017 9:20:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	1.4	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-10

Tag: Measured: 1/18/2017 10:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	1.3	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-14

Tag: Measured: 1/18/2017 11:40:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.9	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

WG416430CCB2

Tag: Measured: 1/18/2017 12:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND		1	U	%	++	0.3	1			

WG416430CCV2

Tag: Measured: 1/18/2017 2:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND	2.1	1		%	++	0.3	1			
SREV	ORGANIC MATTER	REC	105	1		%	++	0.3	1			

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415419

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 12/29/2016 10:37
Start Date/Time: 12/29/2016 11:00
End Date/Time: 12/30/2016 11:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan And Sample Weight (g)	Dried Sample And Pan Weight (g)	Percent Solid (%)	Percent Moisture (%)	Comments
1	WG415419PBS	NONE	as rec		12/29/16 11:00	1.296	10.045	1.296	.00	100.00	
2	L34305-01	I-288C RUN 4 2+3	as rec		12/29/16 12:16	1.296	9.307	8.301	87.44	12.56	
3	L34305-01DUP	NONE	as rec		12/29/16 13:33	1.295	9.325	8.299	87.22	12.78	
4	L34305-02	CM2-7C RUN 3 SAMPLE	as rec		12/29/16 14:50	1.288	9.595	8.082	81.79	18.21	
5	L34305-03	CM3-2C RUN 3 SAMPLE	as rec		12/29/16 16:07	1.282	9.751	9.013	91.29	8.71	
6	L34305-04	CM6-5C RUN 6 SAMPLE	as rec		12/29/16 17:24	1.278	9.371	7.524	77.18	22.82	
7	L34425-01	4B 4 2.0	as rec		12/29/16 18:41	1.28	9.229	8.76	94.10	5.90	
8	L34445-01	TP-6_7_9 (2-5)	as rec		12/29/16 19:57	1.288	9.27	8.332	88.25	11.75	
9	L34445-02	TP-12 (2-4)	as rec		12/29/16 21:14	1.293	9.709	8.986	91.41	8.59	
10	L34445-03	TP-15_16 (2-13)	as rec		12/29/16 22:31	1.296	9.207	8.084	85.80	14.20	
11	L34445-04	TP-20 (1-4)	as rec		12/29/16 23:48	1.293	9.393	8.685	91.26	8.74	
12	L34446-01	SB-01_02GT (1.5-6.5)	as rec		12/30/16 1:05	1.294	9.634	8.458	85.90	14.10	
13	L34446-02	SB-07GT (4-21)	as rec		12/30/16 2:22	1.287	9.304	8.812	93.86	6.14	
14	L34446-03	SB-03_TP-3 (1-5)	as rec		12/30/16 3:39	1.288	9.782	8.928	89.95	10.05	
15	L34446-04	TP-6 (7-10)	as rec		12/30/16 4:55	1.305	9.262	7.803	81.66	18.34	
16	L34446-05	TP-8 (3.5-13)	as rec		12/30/16 6:12	1.311	9.258	8.968	96.35	3.65	
17	L34446-06	TP-9 (7-14)	as rec		12/30/16 7:29	1.306	9.736	9.604	98.43	1.57	
18	L34446-07	TP-12 (7-9)	as rec		12/30/16 8:46	1.312	9.861	8.891	88.65	11.35	
19	L34446-08	TP-14 (3-7)	as rec		12/30/16 10:03	1.311	9.655	9.26	95.27	4.73	
20	L34446-09	TP-20 (12-14)	as rec		12/30/16 11:20	1.296	9.875	8.962	89.36	10.64	

Report Comments: _____

Internal Comments _____

AREV: RBT 12/30/16
Initials, Date

SREV: BRD 12/30/16
Initials, Date

L34445-1701201627

12/30/2016 11:44:48 AM 122316

PTS

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415419

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 12/29/2016 10:37
Start Date/Time: 12/29/2016 11:00
End Date/Time: 12/30/2016 11:20

Sample	Login Comments
L34305-01	ZIPLOCK || In Inorganic Cooler
L34305-02	ZIPLOCK || In Inorganic Cooler
L34305-03	ZIPLOCK || In Inorganic Cooler
L34305-04	ZIPLOCK || In Inorganic Cooler
L34425-01	SJ(3),ZIPLOCK || 1 Inorg SJ and Ziplock bag in the Inorganic cooler, 1 Org SJ in the Organic cooler, 1 Org VOA SJ in the VOA fridge.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: PBT
Date: 12/30/16
Approved: ARD
Date: 12/30/16

Analyst: PBT

Workgroup: WG415419

Analysis Date: 12/30/16

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?	✓		
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415419

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: [illegible]
ACZ Dept: 25
Create Date: 12/29/2016 10:37
Start Date/Time: 12/29/16 11:20
End Date/Time: 12/30/16 11:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan And Sample Weight (g)	Dried Sample And Pan Weight (g)	Percent Solid (%)	Percent Moisture (%)	Comments
1	WG415419PBS	NONE				1.296	10.045	1.296			
2	L34305-01	I-288C RUN 4 2+3				1.296	9.307	8.301			
3	L34305-01DUP	NONE				1.295	9.325	8.299			
4	L34305-02	CM2-7C RUN 3 SAMPLE				1.288	9.595	8.092			
5	L34305-03	CM3-2C RUN 3 SAMPLE				1.282	9.751	9.013			
6	L34305-04	CM6-5C RUN 6 SAMPLE				1.278	9.371	7.524			
7	L34425-01	4B 4 2.0				1.280	9.229	8.760			
8	L34445-01	TP-6_7_9 (2-5)				1.288	9.270	8.332			
9	L34445-02	TP-12 (2-4)				1.293	9.709	8.986			
10	L34445-03	TP-15_16 (2-13)				1.296	9.207	8.084			
11	L34445-04	TP-20 (1-4)				1.293	9.393	8.685			
12	L34446-01	SB-01_02GT (1.5-6.5)				1.294	9.634	8.458			
13	L34446-02	SB-07GT (4-21)				1.287	9.304	8.812			
14	L34446-03	SB-03_TP-3 (1-5)				1.288	9.782	8.928			
15	L34446-04	TP-6 (7-10)				1.305	9.262	7.803			
16	L34446-05	TP-8 (3.5-13)				1.311	9.258	8.968			
17	L34446-06	TP-9 (7-14)				1.306	9.736	9.604			
18	L34446-07	TP-12 (7-9)				1.312	9.861	8.991			
19	L34446-08	TP-14 (3-7)				1.311	9.655	9.260			
20	L34446-09	TP-20 (12-14)				1.296	9.875	8.962			

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415419

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 12/29/2016 10:37
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34305-01	ZIPLOCK || In Inorganic Cooler
L34305-02	ZIPLOCK || In Inorganic Cooler
L34305-03	ZIPLOCK || In Inorganic Cooler
L34305-04	ZIPLOCK || In Inorganic Cooler
L34425-01	SJ(3),ZIPLOCK || 1 Inorg SJ and Ziplock bag in the Inorganic cooler, 1 Org SJ in the Organic cooler, 1 Org VOA SJ in the VOA fridge.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415419

Date Reported:	30-Dec-16
Run ID:	R1488720
Date Analyzed:	29-Dec-16
ICAL Workgroup:	
Instrument ID:	SOILS

WG415419PBS

Tag: Measured: 12/29/2016 11:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	1.296	1		g	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	10.045	1		g	++					
SREV	PAN WEIGHT	PREP	1.296	1		g	++					
SREV	PERCENT SOLID	FOUND		1	U	%	++	0.1	0.5			

L34305-01

Tag: Measured: 12/29/2016 12:16:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.301	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.307	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	12.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	87.4	1		%	++	0.1	0.5		TB	

L34305-01DUP

Tag: Measured: 12/29/2016 1:33:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	8.299	1		g	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	9.325	1		g	++					
SREV	PAN WEIGHT	PREP	1.295	1		g	++					
SREV	PERCENT MOISTURE	FOUND	12.78	1		%	++	0.1	0.5			
SREV	PERCENT MOISTURE	RPD	1	1		%	++	0.1	0.5			
SREV	PERCENT SOLID	FOUND	87.22	1		%	++	0.1	0.5			
SREV	PERCENT SOLID	RPD	0	1		%	++	0.1	0.5			

L34305-02

Tag: Measured: 12/29/2016 2:50:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.082	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.595	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	18.2	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	81.8	1		%	++	0.1	0.5		TB	

L34305-03

Tag: Measured: 12/29/2016 4:07:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.013	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.751	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.282	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	8.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	91.3	1		%	++	0.1	0.5		TB	

L34305-04

Tag: Measured: 12/29/2016 5:24:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	7.524	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.371	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.278	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	22.8	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	77.2	1		%	++	0.1	0.5		TB	

L34425-01

Tag: Measured: 12/29/2016 6:41:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.76	1		g	++				TA TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.229	1		g	++				TA TB	
NEED	PAN WEIGHT	PREP	1.28	1		g	++				TA TB	
NEED	PERCENT MOISTURE	REG	5.9	1		%	++	0.1	0.5		TA TB	
SREV	PERCENT SOLID	NT-SOLID	94.1	1		%	++	0.1	0.5		TA TB	

L34445-01

Tag: Measured: 12/29/2016 7:57:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.332	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.27	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	11.8	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	88.3	1		%	++	0.1	0.5		TB	

L34445-02

Tag: Measured: 12/29/2016 9:14:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.986	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.709	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.293	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	8.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	91.4	1		%	++	0.1	0.5		TB	

L34445-03

Tag: Measured: 12/29/2016 10:31:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.084	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.207	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	14.2	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	85.8	1		%	++	0.1	0.5		TB	

L34445-04

Tag: Measured: 12/29/2016 11:48:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.685	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.393	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.293	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	8.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	91.3	1		%	++	0.1	0.5		TB	

L34446-01

Tag: Measured: 12/30/2016 1:05:21 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.458	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.634	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.294	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	14.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	85.9	1		%	++	0.1	0.5		TB	

L34446-02

Tag: Measured: 12/30/2016 2:22:12 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.812	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.304	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.287	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	6.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	93.9	1		%	++	0.1	0.5		TB	

L34446-03

Tag: Measured: 12/30/2016 3:39:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.928	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.782	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	10.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	90.0	1		%	++	0.1	0.5		TB	

L34446-04

Tag: Measured: 12/30/2016 4:55:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	7.803	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.262	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.305	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	18.3	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	81.7	1		%	++	0.1	0.5		TB	

L34446-05

Tag: Measured: 12/30/2016 6:12:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.968	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.258	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.311	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	3.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	96.4	1		%	++	0.1	0.5		TB	

L34446-06

Tag: Measured: 12/30/2016 7:29:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.604	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.736	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.306	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	1.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	98.4	1		%	++	0.1	0.5		TB	

L34446-07

Tag: Measured: 12/30/2016 8:46:27 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.891	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.861	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.312	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	11.4	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	88.7	1		%	++	0.1	0.5		TB	

L34446-08

Tag: Measured: 12/30/2016 10:03:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.26	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.655	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.311	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	4.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	95.3	1		%	++	0.1	0.5		TB	

L34446-09

Tag: Measured: 12/30/2016 11:20:09 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.962	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.875	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	10.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	89.4	1		%	++	0.1	0.5		TB	

Sulfur total

QC List Type: QC-S-TOTAL
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-TOTAL
Method Ref:
SOP Ref: SOPSO23

WG416470

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/18/2017 17:45
Start Date/Time: 01/18/2017 10:30
End Date/Time: 01/18/2017 17:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ST	Sulfur Total (%)	Comments
1	WG416470PBS	NONE	<250		01/18/17 10:30	✓	0	
2	WG416470LCSS	PCN52722	<250		01/18/17 10:53	✓	3.5	
3	L34445-01	TP-6_7_9 (2-5)	<250		01/18/17 11:16	✓	0	
4	L34445-01MS	PCN49456	<250		01/18/17 11:40	✓	1.24	
5	L34445-01DUP	NONE	<250		01/18/17 12:03	✓	0.01	
6	L34445-02	TP-12 (2-4)	<250		01/18/17 12:26	✓	0	
7	L34445-03	TP-15_16 (2-13)	<250		01/18/17 12:50	✓	0.01	
8	L34445-04	TP-20 (1-4)	<250		01/18/17 13:13	✓	0.03	
9	L34674-01	SB-06GT (1.5-10)	<250		01/18/17 13:36	✓	0.02	
10	L34674-02	SB-07GT (0-4)	<250		01/18/17 14:00	✓	0	
11	L34674-03	SB-09GT (8-12)	<250		01/18/17 14:23	✓	0	
12	L34674-04	SB-09GT (18-22)	<250		01/18/17 14:46	✓	0	
13	L34674-05	SB-12GT (0-27)	<250		01/18/17 15:10	✓	0.07	
14	L34674-06	SB-13AL (0-25)	<250		01/18/17 15:33	✓	0.02	
15	L34674-07	SB-14AL (0-15)	<250		01/18/17 15:56	✓	0	
16	L34674-08	SB-14AL (15-35)	<250		01/18/17 16:20	✓	0	
17	L34674-09	SB-15AL (0-25)	<250		01/18/17 16:43	✓	0	
18	L34674-10	SB-15AL (25-50)	<250		01/18/17 17:06	✓	0.01	
19	L34674-14	SB-09GT (8-12-DUPLIC	<250		01/18/17 17:30	✓	0	

Report Comments: _____

Internal Comments _____

AREV: CRA 1-19-17
Initials, Date

SREV: BRD 1/19/17
Initials, Date

Sulfur total

QC List Type: QC-S-TOTAL
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-TOTAL
Method Ref:
SOP Ref: SOPSO23

WG416470

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/18/2017 17:45
Start Date/Time: 01/18/2017 10:30
End Date/Time: 01/18/2017 17:30

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: CRA
Date: 1-19-17

Approved: RJO
Date: 1/19/17

Analyst: CRA

Workgroup: 416470

Analysis Date: 1-18-17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?			X
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALCHK	0.2010	soils/ore	1/18/2017 10:30:35 AM	32.623	0.018662	A01
502-813	CALCHK	0.2040	soils/ore	1/18/2017 10:39:01 AM	1.1952	1.0058	A03
LCSS	CALCHK	0.2000	soils/ore	1/18/2017 10:41:25 AM	3.8427	3.6670	A04
502-813	CALCHK	0.2030	soils/ore	1/18/2017 10:45:04 AM	1.2075	1.0844	A06
LCSS	CALCHK	0.2050	soils/ore	1/18/2017 3:47:46 PM	3.5983	3.7338	B05
Blank	CALCHK	0.2000	soils/ore	1/18/2017 3:49:46 PM	0.000089965	-0.0078375	B06
LCSS	TC/ST	0.2070	soils/ore	1/18/2017 3:54:18 PM	3.5012	3.6588	A01
L34445-01	TC/ST	0.1980	soils/ore	1/18/2017 3:56:30 PM	0.0094041	1.2857	A02
L34445-01DUP	TC/ST	0.2040	soils/ore	1/18/2017 3:58:42 PM	0.012725	1.2754	A03
L34445-02	TC/ST	0.2030	soils/ore	1/18/2017 4:00:40 PM	-0.0090165	2.9188	A04
L34445-03	TC/ST	0.2030	soils/ore	1/18/2017 4:02:58 PM	0.012985	0.71402	A05
L34445-04	TC/ST	0.2060	soils/ore	1/18/2017 4:05:13 PM	0.025136	1.5220	A06
L34674-01	TC/ST	0.2060	soils/ore	1/18/2017 4:07:25 PM	0.017401	1.8554	A07
L34674-02	TC/ST	0.2010	soils/ore	1/18/2017 4:09:36 PM	0.0015896	1.6846	A08
L34674-03	TC/ST	0.1960	soils/ore	1/18/2017 4:11:48 PM	0.00086695	0.47934	A09
L34674-04	TC/ST	0.1920	soils/ore	1/18/2017 4:13:45 PM	-0.0047724	0.28289	A10
L34674-05	TC/ST	0.1990	soils/ore	1/18/2017 4:16:09 PM	0.068280	1.7890	B01
L34674-06	TC/ST	0.1980	soils/ore	1/18/2017 4:18:20 PM	0.019054	1.5941	B02
L34674-07	TC/ST	0.1940	soils/ore	1/18/2017 4:20:39 PM	-0.0018712	1.0992	B03
L34674-08	TC/ST	0.1940	soils/ore	1/18/2017 4:23:28 PM	0.0054369	0.78273	B04
L34674-09	TC/ST	0.1930	soils/ore	1/18/2017 4:25:42 PM	0.0073698	0.87283	B05
L34674-10	TC/ST	0.2030	soils/ore	1/18/2017 4:27:59 PM	0.010034	0.95580	B06
L34674-14	TC/ST	0.2050	soils/ore	1/18/2017 4:30:10 PM	0.0070898	0.60189	B07
LCSS	CALCHK	0.1970	soils/ore	1/18/2017 4:33:30 PM	3.4606	3.7054	B08
Blank	CALCHK	0.2000	soils/ore	1/18/2017 4:35:30 PM	0.000050126	-0.0021143	B09
L34445-01MS	ST	0.2000	soils/ore	1/18/2017 5:21:36 PM	1.2444	2.3604	A10
LCSS	CALCHK	0.2020	soils/ore	1/18/2017 5:24:49 PM	3.6922	3.7862	B01
Blank	CALCHK	0.2000	soils/ore	1/18/2017 5:26:48 PM	-0.00069982	0.0084025	B02

see below for MS.

Element	Average	Std. Deviation	RSD	Count
Mass	0.2005	0.004	2.052	28
Sulfur %	1.9481	6.17058	316.7	28
Carbon %	1.5262	1.25017	81.92	28

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALIBRATE	0.1500	soils/ore	1/13/2017 10:55:17 AM	33.394	0.0019411	A02
High Sulfur	CALIBRATE	0.3500	soils/ore	1/13/2017 11:03:22 AM	32.695	0.0094383	A10
502-814	CALIBRATE	0.2500	soils/ore	1/13/2017 11:06:47 AM	0.34115	22.653	A04
502-814	CALIBRATE	0.1500	soils/ore	1/13/2017 11:09:58 AM	0.33399	22.347	A05
502-814	CALIBRATE	0.3500	soils/ore	1/13/2017 11:12:57 AM	0.33997	22.619	A06
502-813	CALIBRATE	0.2500	soils/ore	1/13/2017 11:17:21 AM	1.3270	1.0742	A07
502-813	CALIBRATE	0.1500	soils/ore	1/13/2017 11:20:43 AM	1.3041	1.0756	A08
502-813	CALIBRATE	0.3500	soils/ore	1/13/2017 11:24:54 AM	1.3193	1.0668	A09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2500	0.09	37.03	8
Sulfur %	8.8819	14.9217	168.0	8
Carbon %	8.8558	11.3402	128.1	8

Sulfur total

QC List Type: QC-S-TOTAL
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-TOTAL
Method Ref:
SOP Ref: SOPSO23

WG416470

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/18/2017 17:45
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ST	Sulfur Total (%)	Comments
1	WG416470PBS	NONE				✓		
2	WG416470LCSS	PCN52722				✓		
3	L34445-01	TP-6_7_9 (2-5)				✓		
4	L34445-01MS	PCN49456				✓		
5	L34445-01DUP	NONE				✓		
6	L34445-02	TP-12 (2-4)				✓		
7	L34445-03	TP-15_16 (2-13)				✓		
8	L34445-04	TP-20 (1-4)				✓		
9	L34674-01	SB-06GT (1.5-10)				✓		
10	L34674-02	SB-07GT (0-4)				✓		
11	L34674-03	SB-09GT (8-12)				✓		
12	L34674-04	SB-09GT (18-22)				✓		
13	L34674-05	SB-12GT (0-27)				✓		
14	L34674-06	SB-13AL (0-25)				✓		
15	L34674-07	SB-14AL (0-15)				✓		
16	L34674-08	SB-14AL (15-35)				✓		
17	L34674-09	SB-15AL (0-25)				✓		
18	L34674-10	SB-15AL (25-50)				✓		
19	L34674-14	SB-09GT (8-12-DUPLIC				✓		

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Sulfur total

QC List Type: QC-S-TOTAL
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-TOTAL
Method Ref:
SOP Ref: SOPSO23

WG416470

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/18/2017 17:45
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416470

Date Reported: 19-Jan-17
Run ID: R1493989
Date Analyzed: 18-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

WG416470PBS

Tag: Measured: 1/18/2017 10:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND		1	U	%	++	0.01	0.1			

WG416470LCSS

Tag: Measured: 1/18/2017 10:53:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND	3.5	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	92	1		%	++	0.01	0.1			

L34445-01

Tag: Measured: 1/18/2017 11:16:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34445-01MS

Tag: Measured: 1/18/2017 11:40:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND	1.24	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	93	1		%	++	0.01	0.1			

L34445-01DUP

Tag: Measured: 1/18/2017 12:03:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND	0.01	1	B	%	++	0.01	0.1			
SREV	SULFUR TOTAL	RPD	200	1	B	%	ALRT	0.01	0.1		RA	

L34445-02

Tag: Measured: 1/18/2017 12:26:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34445-03

Tag: Measured: 1/18/2017 12:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.01	1	B	%	++	0.01	0.1		RA TB	

L34445-04

Tag: Measured: 1/18/2017 1:13:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.03	1	B	%	++	0.01	0.1		RA TB	

L34674-01

Tag: Measured: 1/18/2017 1:36:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.02	1	B	%	++	0.01	0.1		RA TB	

L34674-02 Tag: Measured: 1/18/2017 2:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-03 Tag: Measured: 1/18/2017 2:23:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-04 Tag: Measured: 1/18/2017 2:46:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-05 Tag: Measured: 1/18/2017 3:10:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.07	1	B	%	++	0.01	0.1		RA TB	

L34674-06 Tag: Measured: 1/18/2017 3:33:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.02	1	B	%	++	0.01	0.1		RA TB	

L34674-07 Tag: Measured: 1/18/2017 3:56:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-08 Tag: Measured: 1/18/2017 4:20:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-09 Tag: Measured: 1/18/2017 4:43:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-10 Tag: Measured: 1/18/2017 5:06:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.01	1	B	%	++	0.01	0.1		RA TB	

L34674-14 Tag: Measured: 1/18/2017 5:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG415921

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 01/10/2017 8:28
Start Date/Time: 01/10/2017 8:30
End Date/Time: 01/11/2017 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	ECSP	PHSP	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
1	WG415921CSTD1	NONE	<2000			01/11/17 6:21	✓	✓	✓	2000	10.06								18.8	
2	WG415921CSTD2	NONE	<2000			01/11/17 7:34	✓	✓	✓	2000	6.99								18.9	
3	WG415921CSTD3	NONE	<2000			01/11/17 8:47	✓	✓	✓	2000	2.04								19	
4	WG415921ICV	PCN50759	<2000			01/11/17 9:59	✓	✓	✓	2000	3.98								18.9	
5	L34445-01	TP-6_7_9 (2-5)	<2000			01/10/17 8:30	✓	✓	✓	2000	6.68	164.3		0.1643	1.325	12.335	8.673	49.84	19.9	
6	L34445-02	TP-12 (2-4)	<2000			01/10/17 9:42	✓	✓	✓	2000	7.45	364		0.364	1.305	13.935	9.611	52.06	19.7	
7	L34445-03	TP-15_16 (2-13)	<2000			01/10/17 10:55	✓	✓	✓	2000	7.02	180.6		0.1806	1.32	15.375	11.073	44.11	19.5	
8	L34445-04	TP-20 (1-4)	<2000			01/10/17 12:08	✓	✓	✓	2000	6.96	125.1		0.1251	1.31	11.191	7.883	50.33	19.9	
9	L34445-04DUP	NONE	<2000			01/10/17 13:21	✓	✓	✓	2000	6.99	123.1		0.1231	1.329	11.097	7.764	51.79	19.8	
10	L34674-01	SB-06GT (1.5-10)	<2000			01/10/17 14:34	✓	✓	✓	2000	7	374		0.374	1.289	10.376	7.304	51.07	20.2	
11	L34674-02	SB-07GT (0-4)	<2000			01/10/17 15:47	✓	✓	✓	2000	6.5	174.4		0.1744	1.288	8.962	6.388	50.47	19.8	
12	L34674-03	SB-09GT (8-12)	<2000			01/10/17 16:59	✓	✓	✓	2000	7.34	280		0.28	1.296	11.815	8.673	42.59	20.1	
13	L34674-04	SB-09GT (18-22)	<2000			01/10/17 18:12	✓	✓	✓	2000	7.27	230		0.23	1.29	10.743	7.386	55.07	20.2	
14	L34674-05	SB-12GT (0-27)	<2000			01/10/17 19:25	✓	✓	✓	2000	7.33	356		0.356	1.3	11.974	8.552	47.19	20.2	
15	WG415921CCV1	PCN50759	<2000			01/11/17 3:55	✓	✓	✓	2000	4.01								19	
16	L34674-06	SB-13AL (0-25)	<2000			01/10/17 20:38	✓	✓	✓	2000	6.88	402		0.402	1.301	8.328	6.62	32.11	20.2	
17	L34674-07	SB-14AL (0-15)	<2000			01/10/17 21:51	✓	✓	✓	2000	7.99	329		0.329	1.302	8.998	7	35.06	20.2	
18	L34674-08	SB-14AL (15-35)	<2000			01/10/17 23:04	✓	✓	✓	2000	7.7	415		0.415	1.308	10.07	7.402	43.78	20.1	
19	L34674-09	SB-15AL (0-25)	<2000			01/11/17 0:17	✓	✓	✓	2000	6.89	235		0.235	1.293	11.561	9.035	32.63	20.3	

Report Comments: _____

Internal Comments _____

AREV: 1/16/17
Initials, Date

SREV: 1/17/17
Initials, Date

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG415921

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 01/10/2017 8:28
Start Date/Time: 01/10/2017 8:30
End Date/Time: 01/11/2017 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	ECSP	PHSP	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
20	L34674-10	SB-15AL (25-50)	<2000			01/11/17 1:29	✔	✔		2000	7.02	239		0.239	1.286	9.31	9.056	3.27	20	
21	L34674-14	SB-09GT (8-12-DUPLIC	<2000			01/11/17 2:42	✔	✔	✔	2000	7.49	242		0.242	1.294	11.235	6.781	81.17	20.2	
22	WG415921CCV2	PCN50759	<2000			01/11/17 5:08	✔	✔	✔	2000	4.05								19.2	

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBT
Date: 1/11/17

Approved: JLD
Date: 1/17/17

Analyst: RBT

Workgroup: WG415921

Analysis Date: 1/11/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?	✓		
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?	✓		
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
Buffer 2	50775	11/31/18
7	49402	7/31/17
10	51935	4/30/18
E.C. Standard	51546	12/31/17
E.C. LCSS	51566	4/30/18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.02.14.08

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG415921

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: RST
ACZ Dept: 25
Create Date: 01/10/2017 8:28
Start Date/Time: 1/10/17 8:30
End Date/Time: 1/11/17 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	ECSP	PHSP	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
										RST 1/11/17					RST 1/11/17					
1	WG415921CSTD1	NONE					✓	✓	✓	10.06									18.8	
2	WG415921CSTD2	NONE					✓	✓	✓	6.99									19.9	
3	WG415921CSTD3	NONE					✓	✓	✓	2.04									19.0	
4	WG415921ICV	PCN50759					✓	✓	✓	3.98									18.9	
5	L34445-01	TP-6_7_9 (2-5)					✓	✓	✓	6.68	164.3			.1643	1.325	12.335	8.673		19.9	
6	L34445-02	TP-12 (2-4)					✓	✓	✓	7.45	364			.364	1.305	13.935	9.611		19.7	
7	L34445-03	TP-15_16 (2-13)					✓	✓	✓	7.02	180.8			.1806	1.320	15.375	11.073		19.5	
8	L34445-04	TP-20 (1-4)					✓	✓	✓	6.96	125.1			.251	1.310	11.191	7.893		19.9	
9	L34445-04DUP	NONE					✓	✓	✓	6.99	123.1			.1231	1.329	10.576	7.764		19.8	
10	L34674-01	SB-06GT (1.5-10)					✓	✓	✓	7.00	374			.374	1.289	1.259	7.304		20.2	
11	L34674-02	SB-07GT (0-4)					✓	✓	✓	6.50	174.4			.1744	1.288	8.962	6.388		19.8	
12	L34674-03	SB-09GT (8-12)					✓	✓	✓	7.34	280			.280	1.296	11.815	8.673		20.1	
13	L34674-04	SB-09GT (18-22)					✓	✓	✓	7.27	230			.230	1.290	10.743	7.386		20.2	
14	L34674-05	SB-12GT (0-27)					✓	✓	✓	7.33	356			.356	1.300	11.974	8.652		20.2	
15	WG415921CCV1	PCN50759					✓	✓	✓	4.01					—	—	—		19.0	
16	L34674-06	SB-13AL (0-25)					✓	✓	✓	6.86	402			.402	1.301	8.329	6.620		20.2	
17	L34674-07	SB-14AL (0-15)					✓	✓	✓	7.99	329			.329	1.302	8.998	7.000		20.2	
18	L34674-08	SB-14AL (15-35)					✓	✓	✓	7.70	415			.415	1.308	10.020	7.402		20.1	
19	L34674-09	SB-15AL (0-25)					✓	✓	✓	6.99	235			.235	1.293	11.561	9.035		20.3	

RST 1/10/17

Report Comments: PBS: Pan | Wet | Dry Sample
1.330 | 8.703 | 1.330

Internal Comments

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG415921

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/10/2017 8:28
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	ECSP	PHSP	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
20	L34674-10	SB-15AL (25-50)					☑	☑	☑		7.02		239	1.236	1.291	9.310	9.056		20.0	
21	L34674-14	SB-09GT (8-12-DUPLIC					☑	☑	☑		7.49		242	~~1.201~~	~~1.299~~	11.235	6.181		20.2	
22	WG415921CCV2	PCN50759					☑	☑	☑		4.05				1.294				19.2	

EDT 1/11/17 .239

.242 1/10/17

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

AREV: Initials, Date

SREV: Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415921

Date Reported: 17-Jan-17
Run ID: R1491387
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

L34445-01

Tag: **Measured:** 1/10/2017 8:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.164	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	164.3	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.673	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.325	1			++				TB	
SREV	PH	PH-SP	6.7	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	49.8	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.9	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	12.335	1			++				TB	

L34445-02

Tag: **Measured:** 1/10/2017 9:42:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.364	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	364	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.611	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.305	1			++				TB	
SREV	PH	PH-SP	7.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	52.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.7	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	13.935	1			++				TB	

L34445-03

Tag: **Measured:** 1/10/2017 10:55:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.181	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	180.6	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	11.073	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.32	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	44.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.5	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	15.375	1			++				TB	

L34445-04

Tag: Measured: 1/10/2017 12:08:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.125	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	125.1	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.883	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.31	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	50.3	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.9	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.191	1			++				TB	

L34445-04DUP

Tag: Measured: 1/10/2017 1:21:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	FOUND	0.123	1		mmhos/cm	++	0.001	0.01			
SREV	CONDUCTIVITY	RPD	2	1		%	++	0.001	0.01			
SREV	PH	FOUND	7	1		units	++	0.1	0.1			
SREV	PH	RPD	0	1		%	++	0.1	0.1			
SREV	SAT PCNT	FOUND	51.79	1		%	++	0.01	0.1			
SREV	SAT PCNT	RPD	3	1		%	++	0.01	0.1			

L34674-01

Tag: Measured: 1/10/2017 2:34:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.374	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	374	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.304	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.289	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	51.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.376	1			++				TB	

L34674-02

Tag: Measured: 1/10/2017 3:47:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.174	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	174.4	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.388	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1			++				TB	
SREV	PH	PH-SP	6.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	50.5	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.8	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.962	1			++				TB	

L34674-03

Tag: Measured: 1/10/2017 4:59:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.280	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	280	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.673	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	42.6	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.1	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.815	1			++				TB	

L34674-04

Tag: Measured: 1/10/2017 6:12:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.230	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	230	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.386	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.29	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	55.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.743	1			++				TB	

L34674-05

Tag: Measured: 1/10/2017 7:25:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.356	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	356	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.552	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.3	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	47.2	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.974	1			++				TB	

L34674-06

Tag: Measured: 1/10/2017 8:38:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.402	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	402	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.62	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.301	1			++				TB	
SREV	PH	PH-SP	6.9	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	32.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.328	1			++				TB	

L34674-07

Tag: Measured: 1/10/2017 9:51:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.329	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	329	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.302	1			++				TB	
SREV	PH	PH-SP	8.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	35.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.998	1			++				TB	

L34674-08

Tag: Measured: 1/10/2017 11:04:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.415	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	415	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.402	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.308	1			++				TB	
SREV	PH	PH-SP	7.7	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	43.8	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.1	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.07	1			++				TB	

L34674-09

Tag: Measured: 1/11/2017 12:17:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.235	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	235	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.035	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.293	1			++				TB	
SREV	PH	PH-SP	6.9	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	32.6	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.3	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.561	1			++				TB	

L34674-10

Tag: Measured: 1/11/2017 1:29:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.239	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	239	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.056	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.286	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
NEED	SAT PCNT	REG	3.27	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.0	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	9.31	1			++				TB	

L34674-14

Tag:

Measured: 1/11/2017 2:42:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.242	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	242	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.781	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.294	1			++				TB	
SREV	PH	PH-SP	7.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	81.2	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.235	1			++				TB	

WG415921CCV1

Tag:

Measured: 1/11/2017 3:55:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

WG415921CCV2

Tag:

Measured: 1/11/2017 5:08:27 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.1	1		units	++	0.1	0.1			
SREV	PH	REC	103	1		%	++	0.1	0.1			

WG415921ICV

Tag:

Measured: 1/11/2017 9:59:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415921

Date Reported: 12-Jan-17
Run ID: R1491387
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

WG415921ICV

Tag:

Measured: 1/10/2017 12:08:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

L34445-01

Tag:

Measured: 1/10/2017 1:21:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.164	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	164.3	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.673	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.325	1			++				TB	
SREV	PH	PH-SP	6.7	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	49.8	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.9	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	12.335	1			++				TB	

L34445-02

Tag:

Measured: 1/10/2017 2:34:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.364	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	364	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.611	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.305	1			++				TB	
SREV	PH	PH-SP	7.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	52.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.7	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	13.935	1			++				TB	

L34445-03

Tag:

Measured: 1/10/2017 3:47:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.181	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	180.6	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	11.073	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.32	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	44.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.5	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	15.375	1			++				TB	

L34445-04

Tag: Measured: 1/10/2017 4:59:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.125	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	125.1	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.883	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.31	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	50.3	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.9	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.191	1			++				TB	

L34445-04DUP

Tag: Measured: 1/10/2017 6:12:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	FOUND	0.123	1		mmhos/cm	++	0.001	0.01			
SREV	CONDUCTIVITY	RPD	2	1		%	++	0.001	0.01			
SREV	PH	FOUND	7	1		units	++	0.1	0.1			
SREV	PH	RPD	0	1		%	++	0.1	0.1			
SREV	SAT PCNT	FOUND	51.79	1		%	++	0.01	0.1			
SREV	SAT PCNT	RPD	3	1		%	++	0.01	0.1			

L34674-01

Tag: Measured: 1/10/2017 7:25:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.374	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	374	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.304	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.289	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	51.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.376	1			++				TB	

L34674-02

Tag: Measured: 1/10/2017 8:38:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.174	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	174.4	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.388	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1			++				TB	
SREV	PH	PH-SP	6.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	50.5	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.8	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.962	1			++				TB	

L34674-03

Tag: Measured: 1/10/2017 9:51:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.280	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	280	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.673	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	42.6	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.1	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.815	1			++				TB	

L34674-04

Tag: Measured: 1/10/2017 11:04:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.230	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	230	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.386	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.29	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	55.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.743	1			++				TB	

L34674-05

Tag: Measured: 1/11/2017 12:17:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.356	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	356	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.552	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.3	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	47.2	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.974	1			++				TB	

WG415921CCV1

Tag: Measured: 1/11/2017 1:29:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

L34674-06

Tag: Measured: 1/11/2017 2:42:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.402	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	402	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.62	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.301	1			++				TB	
SREV	PH	PH-SP	6.9	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	32.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.328	1			++				TB	

L34674-07

Tag: Measured: 1/11/2017 3:55:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.329	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	329	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.302	1			++				TB	
SREV	PH	PH-SP	8.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	35.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.998	1			++				TB	

L34674-08

Tag: Measured: 1/11/2017 5:08:27 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.415	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	415	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.402	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.308	1			++				TB	
SREV	PH	PH-SP	7.7	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	43.8	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.1	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.07	1			++				TB	

L34674-09

Tag: Measured: 1/11/2017 6:21:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.235	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	235	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.035	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.293	1			++				TB	
SREV	PH	PH-SP	6.9	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	32.6	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.3	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.561	1			++				TB	

L34674-10

Tag:

Measured: 1/11/2017 7:34:09 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.239	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	239	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.056	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.286	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	REG	3.27	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.0	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	9.31	1			++				TB	

L34674-14

Tag:

Measured: 1/11/2017 8:47:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.242	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	242	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.781	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.294	1			++				TB	
SREV	PH	PH-SP	7.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	81.2	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.235	1			++				TB	

WG415921CCV2

Tag:

Measured: 1/11/2017 9:59:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.1	1		units	++	0.1	0.1			
SREV	PH	REC	103	1		%	++	0.1	0.1			

Carbon

QC List Type: QC-TIC-TOC
QCListMatClass: SOLID
Bench Sheet List: I-TIC-TOC
QC Ref: TC-TIC-TOC-SOLID
Group ID: SA-G-TIC-TOC
Method Ref:
SOP Ref: SOPSO032

WG416304

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/17/2017 8:55
Start Date/Time: 01/17/2017 9:00
End Date/Time: 01/19/2017 16:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Total Carbon (%)	Total Inorganic Carbon (%)	Total Organic Carbon (%)	Comments
1	WG416304PBS	NONE	<250		01/19/17 16:30	0	0	0	
2	WG416304LCSS	PCN52724	<250		01/19/17 13:14	3.7	0.3	3.4	
3	L34445-01	TP-6_7_9 (2-5)	<250		01/17/17 9:00	1.3	0.2	1.1	
4	L34445-01DUP	NONE	<250		01/17/17 12:15	1.3	0.2	1.1	
5	L34445-02	TP-12 (2-4)	<250		01/17/17 15:31	2.9	1.7	1.2	
6	L34445-03	TP-15_16 (2-13)	<250		01/17/17 18:47	0.7	0.1	0.6	
7	L34445-04	TP-20 (1-4)	<250		01/17/17 22:03	1.5	0.2	1.3	
8	L34674-01	SB-06GT (1.5-10)	<250		01/18/17 1:19	1.9	0.5	1.4	
9	L34674-02	SB-07GT (0-4)	<250		01/18/17 4:35	1.7	0.3	1.4	
10	L34674-03	SB-09GT (8-12)	<250		01/18/17 7:51	0.5	0.1	0.4	
11	L34674-04	SB-09GT (18-22)	<250		01/18/17 11:07	0.3	0	0.3	
12	L34674-05	SB-12GT (0-27)	<250		01/18/17 14:22	1.8	0.6	1.2	
13	L34674-06	SB-13AL (0-25)	<250		01/18/17 17:38	1.6	0.2	1.4	
14	L34674-07	SB-14AL (0-15)	<250		01/18/17 20:54	1.1	0.9	0.2	
15	L34674-08	SB-14AL (15-35)	<250		01/19/17 0:10	0.8	0.6	0.2	
16	L34674-09	SB-15AL (0-25)	<250		01/19/17 3:26	0.9	0.1	0.8	
17	L34674-10	SB-15AL (25-50)	<250		01/19/17 6:42	1	0.1	0.9	
18	L34674-14	SB-09GT (8-12-DUPLIC	<250		01/19/17 9:58	0.6	0.1	0.5	

Report Comments: _____

Internal Comments _____

AREV: CRA 1-20-17
Initials, Date

SREV: BRD 1/20/17
Initials, Date

Carbon

QC List Type: QC-TIC-TOC
QCListMatClass: SOLID
Bench Sheet List: I-TIC-TOC
QC Ref: TC-TIC-TOC-SOLID
Group ID: SA-G-TIC-TOC
Method Ref:
SOP Ref: SOPSO032

WG416304

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/17/2017 8:55
Start Date/Time: 01/17/2017 9:00
End Date/Time: 01/19/2017 16:30

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34445-1701201627

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: GRA
Date: 1-19-17

Approved: BRO
Date: 1/20/17

Analyst: GRA

Workgroup: 416304

Analysis Date: 1-18-17 + 1-19-17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?			X
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?			X
8. Is the appropriate spike in the computer-designated line?			X
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
2 N HCl	SF170113-2	1-13-18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALCHK	0.2010	soils/ore	1/18/2017 10:30:35 AM	32.623	0.018662	A01
502-814	CALCHK	0.1930	soils/ore	1/18/2017 10:35:50 AM	0.27817	23.316	A02
LCSS	CALCHK	0.2000	soils/ore	1/18/2017 10:41:25 AM	3.8427	3.6670	A04
502-813	CALCHK	0.2030	soils/ore	1/18/2017 10:45:04 AM	1.2075	1.0844	A06
Blank	CALCHK	0.2020	soils/ore	1/18/2017 10:47:52 AM	0.0010210	-0.011873	A05
LCSS	CALCHK	0.2050	soils/ore	1/18/2017 3:47:46 PM	3.5983	3.7338	B05
Blank	CALCHK	0.2000	soils/ore	1/18/2017 3:49:46 PM	0.000089965	-0.0078375	B06
LCSS	TC/ST	0.2070	soils/ore	1/18/2017 3:54:18 PM	3.~~5012~~	3.6588	A01
L34445-01	TC/ST	0.1980	soils/ore	1/18/2017 3:56:30 PM	~~0.0094041~~	1.2857	A02
L34445-01DUP	TC/ST	0.2040	soils/ore	1/18/2017 3:58:42 PM	~~0.012725~~	1.2754	A03
L34445-02	TC/ST	0.2030	soils/ore	1/18/2017 4:00:40 PM	-0.0090165	2.9188	A04
L34445-03	TC/ST	0.2030	soils/ore	1/18/2017 4:02:58 PM	0.012985	0.71402	A05
L34445-04	TC/ST	0.2060	soils/ore	1/18/2017 4:05:13 PM	0.025136	1.5220	A06
L34674-01	TC/ST	0.2060	soils/ore	1/18/2017 4:07:25 PM	0.017401	1.8554	A07
L34674-02	TC/ST	0.2010	soils/ore	1/18/2017 4:09:36 PM	0.0015896	1.6846	A08
L34674-03	TC/ST	0.1960	soils/ore	1/18/2017 4:11:48 PM	0.00086695	0.47934	A09
L34674-04	TC/ST	0.1920	soils/ore	1/18/2017 4:13:45 PM	-0.0047724	0.28289	A10
L34674-05	TC/ST	0.1990	soils/ore	1/18/2017 4:16:09 PM	0.068280	1.7890	B01
L34674-06	TC/ST	0.1980	soils/ore	1/18/2017 4:18:20 PM	0.019054	1.5941	B02
L34674-07	TC/ST	0.1940	soils/ore	1/18/2017 4:20:39 PM	-0.0018712	1.0992	B03
L34674-08	TC/ST	0.1940	soils/ore	1/18/2017 4:23:28 PM	0.0054369	0.78273	B04
L34674-09	TC/ST	0.1930	soils/ore	1/18/2017 4:25:42 PM	0.0073698	0.87283	B05
L34674-10	TC/ST	0.2030	soils/ore	1/18/2017 4:27:59 PM	0.010034	0.95580	B06
L34674-14	TC/ST	0.2050	soils/ore	1/18/2017 4:30:10 PM	0.0070898	0.60189	B07
LCSS	CALCHK	0.1970	soils/ore	1/18/2017 4:33:30 PM	3.4606	3.7054	B08
Blank	CALCHK	0.2000	soils/ore	1/18/2017 4:35:30 PM	0.000050126	-0.0021143	B09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2001	0.004	2.227	26
Sulfur %	1.8729	6.40807	342.2	26
Carbon %	2.2645	4.45785	196.9	26

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALCHK	0.2000	soils/ore	1/19/2017 2:40:10 PM	33.126	0.015057	A02
502-814	CALCHK	0.2000	soils/ore	1/19/2017 2:42:28 PM	0.26989	23.987	A03
502-813	CALCHK	0.2000	soils/ore	1/19/2017 2:45:21 PM	1.2053	1.1388	A04
LCSS	CALCHK	0.2000	soils/ore	1/19/2017 2:48:08 PM	3.8232	3.7997	A05
Blank	CALCHK	0.2000	soils/ore	1/19/2017 2:50:41 PM	0.00028951	-0.012566	A06
LCSS	TOC	0.1990	soils/ore	1/19/2017 3:17:41 PM	0.080357	3.4369	A01
L34445-01	TOC	0.1960	soils/ore	1/19/2017 3:21:28 PM	0.011031	1.0777	A02
L34445-01DUP	TOC	0.2030	soils/ore	1/19/2017 3:23:40 PM	0.011526	1.0690	A03
L34445-02	TOC	0.1960	soils/ore	1/19/2017 3:25:34 PM	0.0060350	1.2383	A04
L34445-03	TOC	0.1930	soils/ore	1/19/2017 3:27:45 PM	0.0087503	0.56665	A05
L34445-04	TOC	0.1980	soils/ore	1/19/2017 3:29:41 PM	0.016405	1.2551	A06
L34674-01	TOC	0.2080	soils/ore	1/19/2017 3:31:52 PM	0.013913	1.3896	A07
L34674-02	TOC	0.2020	soils/ore	1/19/2017 3:33:49 PM	0.0057538	1.4023	A08
L34674-03	TOC	0.2040	soils/ore	1/19/2017 3:36:00 PM	0.0080784	0.43391	A09
L34674-04	TOC	0.1950	soils/ore	1/19/2017 3:37:53 PM	0.0044923	0.26968	A10
L34674-05	TOC	0.2020	soils/ore	1/19/2017 3:40:05 PM	0.063216	1.2077	B01
L34674-06	TOC	0.2060	soils/ore	1/19/2017 3:42:00 PM	0.014989	1.3831	B02
L34674-07	TOC	0.1960	soils/ore	1/19/2017 3:44:12 PM	0.0052853	0.21511	B03
L34674-08	TOC	0.1960	soils/ore	1/19/2017 3:46:09 PM	0.0070860	0.22227	B04
L34674-09	TOC	0.2080	soils/ore	1/19/2017 3:48:20 PM	0.014216	0.83091	B05
L34674-10	TOC	0.2000	soils/ore	1/19/2017 3:50:17 PM	0.020318	0.92529	B06
L34674-14	TOC	0.1980	soils/ore	1/19/2017 3:52:29 PM	0.011212	0.51644	B07
LCSS	CALCHK	0.1990	soils/ore	1/19/2017 3:54:59 PM	3.4069	3.8129	B08
Blank	CALCHK	0.2080	soils/ore	1/19/2017 3:57:19 PM	-0.000058596	0.011851	B09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2003	0.004	2.100	24
Sulfur %	1.7556	6.76027	385.1	24
Carbon %	2.0913	4.78969	229.0	24

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALIBRATE	0.1500	soils/ore	1/13/2017 10:55:17 AM	33.394	0.0019411	A02
High Sulfur	CALIBRATE	0.3500	soils/ore	1/13/2017 11:03:22 AM	32.695	0.0094383	A10
502-814	CALIBRATE	0.2500	soils/ore	1/13/2017 11:06:47 AM	0.34115	22.653	A04
502-814	CALIBRATE	0.1500	soils/ore	1/13/2017 11:09:58 AM	0.33399	22.347	A05
502-814	CALIBRATE	0.3500	soils/ore	1/13/2017 11:12:57 AM	0.33997	22.619	A06
502-813	CALIBRATE	0.2500	soils/ore	1/13/2017 11:17:21 AM	1.3270	1.0742	A07
502-813	CALIBRATE	0.1500	soils/ore	1/13/2017 11:20:43 AM	1.3041	1.0756	A08
502-813	CALIBRATE	0.3500	soils/ore	1/13/2017 11:24:54 AM	1.3193	1.0668	A09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2500	0.09	37.03	8
Sulfur %	8.8819	14.9217	168.0	8
Carbon %	8.8558	11.3402	128.1	8

Carbon

QC List Type: QC-TIC-TOC
QCListMatClass: SOLID
Bench Sheet List: I-TIC-TOC
QC Ref: TC-TIC-TOC-SOLID
Group ID: SA-G-TIC-TOC
Method Ref:
SOP Ref: SOPSO032

WG416304

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/17/2017 8:55
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Total Carbon (%)	Total Inorganic Carbon (%)	Total Organic Carbon (%)	Comments
1	WG416304PBS	NONE						—	
2	WG416304LCSS	PCN52724						0.199	
3	L34445-01 ✓	TP-6_7_9 (2-5)						0.196	
4	L34445-01DUP ✓	NONE						0.203	
5	L34445-02 ✓	TP-12 (2-4)						0.196	
6	L34445-03 ✓	TP-15_16 (2-13)						0.193	
7	L34445-04 ✓	TP-20 (1-4)						0.198	
8	L34674-01 ✓	SB-06GT (1.5-10)						0.208	
9	L34674-02 ✓	SB-07GT (0-4)						0.202	
10	L34674-03 ✓	SB-09GT (8-12)						0.204	
11	L34674-04 ✓	SB-09GT (18-22)						0.195	
12	L34674-05 ✓	SB-12GT (0-27)						0.202	
13	L34674-06 ✓	SB-13AL (0-25)						0.200	
14	L34674-07 ✓	SB-14AL (0-15)						0.196	
15	L34674-08 ✓	SB-14AL (15-35)						0.196	
16	L34674-09 ✓	SB-15AL (0-25)						0.208	
17	L34674-10 ✓	SB-15AL (25-50)						0.200	
18	L34674-14	SB-09GT (8-12-DUPLIC						0.198	

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Carbon

QC List Type: QC-TIC-TOC
QCListMatClass: SOLID
Bench Sheet List: I-TIC-TOC
QC Ref: TC-TIC-TOC-SOLID
Group ID: SA-G-TIC-TOC
Method Ref:
SOP Ref: SOPSO032

WG416304

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/17/2017 8:55
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416304

Date Reported: 20-Jan-17
Run ID: R1494586
Date Analyzed: 17-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

L34445-01

Tag:

Measured: 1/17/2017 9:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.3	1		%	++	0.1	0.5		TB	
NEED	TIC	REG	.2	1	B	%	++	0.1	0.5		RA TB	
SREV	TOC	TOC	1.1	1		%	++	0.1	0.5		TB ZQ	

L34445-01DUP

Tag:

Measured: 1/17/2017 12:15:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	FOUND	1.3	1		%	++	0.1	0.5			
SREV	TC	RPD	0	1		%	++	0.1	0.5			
SREV	TIC	FOUND	0.2	1	B	%	++	0.1	0.5			
SREV	TIC	RPD	0	1		%	++	0.1	0.5		RA	
SREV	TOC	FOUND	1.1	1		%	++	0.1	0.5			
SREV	TOC	RPD	0	1		%	++	0.1	0.5			

L34445-02

Tag:

Measured: 1/17/2017 3:31:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	2.9	1		%	++	0.1	0.5		TB	
NEED	TIC	REG	1.7	1		%	++	0.1	0.5		RA TB	
SREV	TOC	TOC	1.2	1		%	++	0.1	0.5		TB ZQ	

L34445-03

Tag:

Measured: 1/17/2017 6:47:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.7	1		%	++	0.1	0.5		TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		RA TB	
SREV	TOC	TOC	.6	1		%	++	0.1	0.5		TB ZQ	

L34445-04

Tag:

Measured: 1/17/2017 10:03:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.5	1		%	++	0.1	0.5		TB	
NEED	TIC	REG	.2	1	B	%	++	0.1	0.5		RA TB	
SREV	TOC	TOC	1.3	1		%	++	0.1	0.5		TB ZQ	

L34674-01

Tag:

Measured: 1/18/2017 1:19:25 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.9	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.5	1		%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	1.4	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-02

Tag: Measured: 1/18/2017 4:35:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.7	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.3	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	1.4	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-03

Tag: Measured: 1/18/2017 7:51:11 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.5	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.4	1	B	%	++	0.1	0.5		Q6 TB ZQ	

L34674-04

Tag: Measured: 1/18/2017 11:07:04 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.3	1	B	%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG		1	U	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.3	1	B	%	++	0.1	0.5		Q6 TB ZQ	

L34674-05

Tag: Measured: 1/18/2017 2:22:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.8	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.6	1		%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	1.2	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-06

Tag: Measured: 1/18/2017 5:38:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.6	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.2	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	1.4	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-07

Tag: Measured: 1/18/2017 8:54:43 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.1	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.9	1		%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.2	1	B	%	++	0.1	0.5		Q6 TB ZQ	

L34674-08

Tag: Measured: 1/19/2017 12:10:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.8	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.6	1		%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.2	1	B	%	++	0.1	0.5		Q6 TB ZQ	

L34674-09

Tag: Measured: 1/19/2017 3:26:29 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.9	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.8	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-10

Tag: Measured: 1/19/2017 6:42:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.0	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.9	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-14

Tag: Measured: 1/19/2017 9:58:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.6	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.5	1		%	++	0.1	0.5		Q6 TB ZQ	

WG416304LCSS

Tag: Measured: 1/19/2017 1:14:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	FOUND	3.7	1		%	++	0.1	0.5			
SREV	TIC	FOUND	0.3	1	B	%	++	0.1	0.5			
SREV	TOC	FOUND	3.4	1		%	++	0.1	0.5		ZQ	

WG416304PBS

Tag: Measured: 1/19/2017 4:30:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	FOUND		1	U	%	++	0.1	0.5			
SREV	TIC	FOUND		1	U	%	++	0.1	0.5			
SREV	TOC	FOUND		1	U	%	++	0.1	0.5			

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG415224

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: brd
ACZ Dept: 25
Create Date: 12/22/2016 15:47
Start Date/Time: 01/20/2017 8:00
End Date/Time: 01/20/2017 15:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan and Sample Weight (g)	Sample Weight (g)	Comments
1	**L34427-01**	SHAFT-MDOLCARB	as rec		01/20/17 8:00	0	15370	15370	
2	**L34427-02**	SHAFT-DOLCARB	as rec		01/20/17 8:22	0	9870	9870	
3	**L34427-03**	SHAFT-DOLCARBBC	as rec		01/20/17 8:44	0	5040	5040	
4	**L34427-04**	SHAFT-CARBLAMPBC	as rec		01/20/17 9:06	0	4850	4850	
5	**L34427-05**	SHAFT-MDST	as rec		01/20/17 9:28	0	8850	8850	
6	**L34427-06**	SHAFT-LMST	as rec		01/20/17 9:50	0	13240	13240	
7	**L34427-07**	SHAFT-MAF	as rec		01/20/17 10:12	0	11200	11200	
8	L34445-01	TP-6_7_9 (2-5)	as rec		01/20/17 10:34	0	1130	1130	
9	L34445-02	TP-12 (2-4)	as rec		01/20/17 10:56	0	990.2	990.2	
10	L34445-03	TP-15_16 (2-13)	as rec		01/20/17 11:18	0	1099.3	1099.3	
11	L34445-04	TP-20 (1-4)	as rec		01/20/17 11:41	0	720.4	720.4	
12	L34446-01	SB-01_02GT (1.5-6.5)	as rec		01/20/17 12:03	0	2120	2120	
13	L34446-02	SB-07GT (4-21)	as rec		01/20/17 12:25	0	3860	3860	
14	L34446-03	SB-03_TP-3 (1-5)	as rec		01/20/17 12:47	0	2460	2460	
15	L34446-04	TP-6 (7-10)	as rec		01/20/17 13:09	0	2180	2180	
16	L34446-05	TP-8 (3.5-13)	as rec		01/20/17 13:31	0	1840	1840	
17	L34446-06	TP-9 (7-14)	as rec		01/20/17 13:53	0	1960	1960	
18	L34446-07	TP-12 (7-9)	as rec		01/20/17 14:15	0	1580	1580	
19	L34446-08	TP-14 (3-7)	as rec		01/20/17 14:37	0	1920	1920	
20	L34446-09	TP-20 (12-14)	as rec		01/20/17 14:59	0	1460	1460	

RBM 1/20/17 dc

Report Comments: _____

AREV: BKD 1/20/17
Initials, Date

Internal Comments _____

SREV: BKD 1/20/17
Initials, Date

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG415224

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: brd
ACZ Dept: 25
Create Date: 12/22/2016 15:47
Start Date/Time: 01/20/2017 8:00
End Date/Time: 01/20/2017 15:00

Sample	Login Comments
L34427-01	ZIPLOCK(9) || Composite.
L34427-02	ZIPLOCK(10) || Composite.
L34427-03	ZIPLOCK(5) || Composite.
L34427-04	ZIPLOCK(4) || Composite.
L34427-05	ZIPLOCK(7) || Composite.
L34427-06	ZIPLOCK(8) || Composite.
L34427-07	ZIPLOCK(8) || Composite.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

REV CHECKED BY RBT 1/20/17

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BRD
Date: 1/20/17

Approved: BRD
Date: 1/20/17

Analyst: BRD

Workgroup: 415224

Analysis Date: 1/20/17

Sample type used: soil

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?	✓		
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.02.14.08

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG415224

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 12/22/2016 15:47
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan and Sample Weight (g)	Sample Weight (g)	Comments
1	**L34427-01**	SHAFT-MDOLCARB							
2	**L34427-02**	SHAFT-DOLCARB							
3	**L34427-03**	SHAFT-DOLCARBBC							
4	**L34427-04**	SHAFT-CARBLAMPBC							
5	**L34427-05**	SHAFT-MDST							
6	**L34427-06**	SHAFT-LMST							
7	**L34427-07**	SHAFT-MAF							
8	L34445-01	TP-6_7_9 (2-5)							
9	L34445-02	TP-12 (2-4)							
10	L34445-03	TP-15_16 (2-13)							
11	L34445-04	TP-20 (1-4)							
12	L34446-01	SB-01_02GT (1.5-6.5)				2120.0			
13	L34446-02	SB-07GT (4-21)				3860.0			
14	L34446-03	SB-03_TP-3 (1-5)				2460.0			
15	L34446-04	TP-6 (7-10)				2180.0			
16	L34446-05	TP-8 (3.5-13)				1840.0			
17	L34446-06	TP-9 (7-14)				1960.0			
18	L34446-07	TP-12 (7-9)				1580.0			
19	L34446-08	TP-14 (3-7)				1920.0			
20	L34446-09	TP-20 (12-14)				1460.0			

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG415224

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 12/22/2016 15:47
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34427-01	ZIPLOCK(9) || Composite.
L34427-02	ZIPLOCK(10) || Composite.
L34427-03	ZIPLOCK(5) || Composite.
L34427-04	ZIPLOCK(4) || Composite.
L34427-05	ZIPLOCK(7) || Composite.
L34427-06	ZIPLOCK(8) || Composite.
L34427-07	ZIPLOCK(8) || Composite.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Sample Weight

WG415224

ACZ Laboratories, Inc

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 12/22/2016 15:47
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan and Sample Weight (g)	Sample Weight (g)	Comments
1	**L34427-01**	SHAFT-MDOLCARB					15370.0		
2	**L34427-02**	SHAFT-DOLCARB					9870.0		
3	**L34427-03**	SHAFT-DOLCARBBC					5040.0		
4	**L34427-04**	SHAFT-CARBLAMPBC					4850.0		
5	**L34427-05**	SHAFT-MDST					8850.0		
6	**L34427-06**	SHAFT-LMST					16240.0		
7	**L34427-07**	SHAFT-MAF					11200.0		
8	L34445-01	TP-6_7_9 (2-5)					1130.0		
9	L34445-02	TP-12 (2-4)					990.2		
10	L34445-03	TP-15_16 (2-13)					1699.3		
11	L34445-04	TP-20 (1-4)					720.4		

Sample	Login Comments
L34427-01	ZIPLOCK(9) || Composite.
L34427-02	ZIPLOCK(10) || Composite.
L34427-03	ZIPLOCK(5) || Composite.
L34427-04	ZIPLOCK(4) || Composite.
L34427-05	ZIPLOCK(7) || Composite.
L34427-06	ZIPLOCK(8) || Composite.
L34427-07	ZIPLOCK(8) || Composite.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415224

Date Reported: 20-Jan-17
Run ID: R1495046
Date Analyzed: 20-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

L34427-01

Tag:

Measured: 1/20/2017 8:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	15370	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	15370	1		g	++				TB	

L34427-02

Tag:

Measured: 1/20/2017 8:22:06 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	9870	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	9870	1		g	++				TB	

L34427-03

Tag:

Measured: 1/20/2017 8:44:12 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	5040	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	5040	1		g	++				TB	

L34427-04

Tag:

Measured: 1/20/2017 9:06:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	4850	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	4850	1		g	++				TB	

L34427-05

Tag:

Measured: 1/20/2017 9:28:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	8850	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	8850	1		g	++				TB	

L34427-06

Tag:

Measured: 1/20/2017 9:50:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	13240	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	13240	1		g	++				TB	

L34427-07

Tag:

Measured: 1/20/2017 10:12:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	11200	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	11200	1		g	++				TB	

L34445-01

Tag: Measured: 1/20/2017 10:34:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1130	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1130	1		g	++				TB	

L34445-02

Tag: Measured: 1/20/2017 10:56:48 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	990.2	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	990.2	1		g	++				TB	

L34445-03

Tag: Measured: 1/20/2017 11:18:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1099.3	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1099.3	1		g	++				TB	

L34445-04

Tag: Measured: 1/20/2017 11:41:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	720.4	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	720.4	1		g	++				TB	

L34446-01

Tag: Measured: 1/20/2017 12:03:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	2120	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	2120	1		g	++				TB	

L34446-02

Tag: Measured: 1/20/2017 12:25:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	3860	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	3860	1		g	++				TB	

L34446-03

Tag: Measured: 1/20/2017 12:47:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	2460	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	2460	1		g	++				TB	

L34446-04

Tag: Measured: 1/20/2017 1:09:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	2180	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	2180	1		g	++				TB	

L34446-05

Tag: Measured: 1/20/2017 1:31:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1840	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1840	1		g	++				TB	

L34446-06

Tag: Measured: 1/20/2017 1:53:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1960	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1960	1		g	++				TB	

L34446-07

Tag: Measured: 1/20/2017 2:15:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1580	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1580	1		g	++				TB	

L34446-08

Tag: Measured: 1/20/2017 2:37:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1920	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1920	1		g	++				TB	

L34446-09

Tag: Measured: 1/20/2017 2:59:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1460	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1460	1		g	++				TB	

Cation Exchange Capacity

QC List Type: I-X-CEC
QCListMatClass: SOLID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: PBS-DUP
Group ID: SP-G-CEC
Method Ref: USDA No. 60 (19)
SOP Ref: SOPSO033

WG416214

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/16/2017 8:01
Start Date/Time: 01/16/2017 8:45
End Date/Time: 01/16/2017 16:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	CEC	EC (mmhos/cm)	Comments
1	WG416214PBS	NONE	<2000		01/16/17 8:45		0.0127	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/16/17 9:14		0.0207	
3	L34445-01DUP	NONE	<2000		01/16/17 9:43		0.0199	
4	L34445-02	TP-12 (2-4)	<2000		01/16/17 10:12		0.038	
5	L34445-03	TP-15_16 (2-13)	<2000		01/16/17 10:41		0.0228	
6	L34445-04	TP-20 (1-4)	<2000		01/16/17 11:10		0.0195	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/16/17 11:39		0.01884	
8	L34674-02	SB-07GT (0-4)	<2000		01/16/17 12:08		0.0298	
9	L34674-03	SB-09GT (8-12)	<2000		01/16/17 12:37		0.01136	
10	L34674-04	SB-09GT (18-22)	<2000		01/16/17 13:06		0.0251	
11	L34674-05	SB-12GT (0-27)	<2000		01/16/17 13:35		0.01186	
12	L34674-06	SB-13AL (0-25)	<2000		01/16/17 14:04		0.01552	
13	L34674-07	SB-14AL (0-15)	<2000		01/16/17 14:33		0.01474	
14	L34674-08	SB-14AL (15-35)	<2000		01/16/17 15:02		0.01852	
15	L34674-09	SB-15AL (0-25)	<2000		01/16/17 15:31		0.01733	
16	L34674-10	SB-15AL (25-50)	<2000		01/16/17 16:01		0.0226	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/16/17 16:30		0.01032	

Report Comments: _____

Internal Comments _____

AREV: BCC 1.16.17
Initials, Date

SREV: DRD 1/17/17
Initials, Date

Cation Exchange Capacity

QC List Type: I-X-CEC
QCListMatClass: SOLID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: PBS-DUP
Group ID: SP-G-CEC
Method Ref: USDA No. 60 (19)
SOP Ref: SOPSO033

WG416214

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/16/2017 8:01
Start Date/Time: 01/16/2017 8:45
End Date/Time: 01/16/2017 16:30

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-16-17

Approved: BRD
Date: 1/17/17

Analyst: BCC

Workgroup: 46214

Analysis Date: 1/16/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?	✓		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)? BRD 1/17/17	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)? BCC 1-16-17	✓		✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?	✓		
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
1 N Sodium Acetate	SI170112-2	1-12-18
1 N Ammonium Acetate	SI170112-3	1-12-18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Cation Exchange Capacity

QC List Type: I-X-CEC
QCListMatClass: SOLID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: PBS-DUP
Group ID: SP-G-CEC
Method Ref: USDA No. 60 (19)
SOP Ref: SOPSO033

WG416214

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/16/2017 8:01
Start Date/Time: 1/16/17 8:45a
End Date/Time: 1/16/17

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	CEC	EC (mmhos/cm)	Comments (Us/cm)
1	WG416214PBS	NONE					0.0127	12.7
2	L34445-01	TP-6_7_9 (2-5)					0.0207	20.7
3	L34445-01DUP	NONE				BCC 1-16-17	~~0.19~~ 0.0199	19.9
4	L34445-02	TP-12 (2-4)					0.038	38.0
5	L34445-03	TP-15_16 (2-13)					0.0228	22.8
6	L34445-04	TP-20 (1-4)					0.0195	19.5
7	L34674-01	SB-06GT (1.5-10)					0.01884	18.84
8	L34674-02	SB-07GT (0-4)					0.0298	29.8
9	L34674-03	SB-09GT (8-12)					0.01136	11.36
10	L34674-04	SB-09GT (18-22)					0.0251	25.1
11	L34674-05	SB-12GT (0-27)					0.01186	11.86
12	L34674-06	SB-13AL (0-25)					0.01552	15.52
13	L34674-07	SB-14AL (0-15)					0.01474	14.74
14	L34674-08	SB-14AL (15-35)					0.01852	18.52
15	L34674-09	SB-15AL (0-25)					0.01733	17.33
16	L34674-10	SB-15AL (25-50)					0.0226	22.6
17	L34674-14	SB-09GT (8-12-DUPLIC					0.01032	10.32

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34445-1701201627

Cation Exchange Capacity

QC List Type: I-X-CEC
QCListMatClass: SOLID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: PBS-DUP
Group ID: SP-G-CEC
Method Ref: USDA No. 60 (19)
SOP Ref: SOPSO033

WG416214

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/16/2017 8:01
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

L34445-1701201627

SREV:
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415221

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: brd
ACZ Dept: 20
Create Date: 12/22/2016 15:01
Start Date/Time: 12/27/2016 9:00
End Date/Time: 12/29/2016 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L34305-01	I-288C RUN 4 2+3	as rec			12/27/16 9:00	12/29/2016	
2	L34305-02	CM2-7C RUN 3 SAMPLE	as rec			12/27/16 11:34	12/29/2016	
3	L34305-03	CM3-2C RUN 3 SAMPLE	as rec			12/27/16 14:09	12/29/2016	
4	L34305-04	CM6-5C RUN 6 SAMPLE	as rec			12/27/16 16:44	12/29/2016	
5	**L34427-01**	SHAFT-MDOLCARB	as rec		SAVE SX	12/27/16 19:18	12/29/2016	
6	**L34427-02**	SHAFT-DOLCARB	as rec		SAVE SX	12/27/16 21:53	12/29/2016	
7	**L34427-03**	SHAFT-DOLCARBBC	as rec		SAVE SX	12/28/16 0:28	12/29/2016	
8	**L34427-04**	SHAFT-CARBLAMPBC	as rec		SAVE SX	12/28/16 3:03	12/29/2016	
9	**L34427-05**	SHAFT-MDST	as rec		SAVE SX	12/28/16 5:37	12/29/2016	
10	**L34427-06**	SHAFT-LMST	as rec		SAVE SX	12/28/16 8:12	12/29/2016	
11	**L34427-07**	SHAFT-MAF	as rec		SAVE SX	12/28/16 10:47	12/29/2016	
12	L34445-01	TP-6_7_9 (2-5)	as rec			12/28/16 13:22	12/29/2016	
13	L34445-02	TP-12 (2-4)	as rec			12/28/16 15:56	12/29/2016	
14	L34445-03	TP-15_16 (2-13)	as rec			12/28/16 18:31	12/29/2016	
15	L34445-04	TP-20 (1-4)	as rec			12/28/16 21:06	12/29/2016	
16	L34446-01	SB-01_02GT (1.5-6.5)	as rec			12/28/16 23:41	12/29/2016	
17	L34446-02	SB-07GT (4-21)	as rec			12/29/16 2:15	12/29/2016	
18	L34446-03	SB-03_TP-3 (1-5)	as rec			12/29/16 4:50	12/29/2016	
19	L34446-04	TP-6 (7-10)	as rec			12/29/16 7:25	12/29/2016	
20	L34446-05	TP-8 (3.5-13)	as rec			12/29/16 9:59	12/29/2016	

Report Comments: _____

Internal Comments _____

AREV: RBT 12/29/16
Initials, Date

SREV: [illegible] 12/30/16
Initials, Date

L34445-1701201627

12/29/2016 10:55:42 AM 121916

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415221

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: brd
ACZ Dept: 20
Create Date: 12/22/2016 15:01
Start Date/Time: 12/27/2016 9:00
End Date/Time: 12/29/2016 10:00

Sample	Login Comments
L34305-01	ZIPLOCK || In Inorganic Cooler
L34305-02	ZIPLOCK || In Inorganic Cooler
L34305-03	ZIPLOCK || In Inorganic Cooler
L34305-04	ZIPLOCK || In Inorganic Cooler
L34427-01	ZIPLOCK(9) || Composite.
L34427-02	ZIPLOCK(10) || Composite.
L34427-03	ZIPLOCK(5) || Composite.
L34427-04	ZIPLOCK(4) || Composite.
L34427-05	ZIPLOCK(7) || Composite.
L34427-06	ZIPLOCK(8) || Composite.
L34427-07	ZIPLOCK(8) || Composite.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34445-1701201627

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBI
Date: 12/29/16
Approved:
Date: 12/30/16

Analyst: BRD

Workgroup: WG415221

Analysis Date: 12/29/16

Sample type used: SD

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5.Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?			✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.02.14.08

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415221

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: JD
ACZ Dept: 20
Create Date: 12/22/2016 15:01
Start Date/Time: 12/27/16 9:00
End Date/Time: 12/29/16 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L34305-01	I-288C RUN 4 2+3	as rec					
2	L34305-02	CM2-7C RUN 3 SAMPLE						dry mest
3	L34305-03	CM3-2C RUN 3 SAMPLE						
4	L34305-04	CM6-5C RUN 6 SAMPLE						
5	**L34427-01**	SHAFT-MDOLCARB			SAVE SX			
6	**L34427-02**	SHAFT-DOLCARB			SAVE SX			
7	**L34427-03**	SHAFT-DOLCARBBC			SAVE SX			dry mest
8	**L34427-04**	SHAFT-CARBLAMPBC			SAVE SX			
9	**L34427-05**	SHAFT-MDST			SAVE SX			
10	**L34427-06**	SHAFT-LMST			SAVE SX			
11	**L34427-07**	SHAFT-MAF			SAVE SX			
12	L34445-01	TP-6_7_9 (2-5)						
13	L34445-02	TP-12 (2-4)						
14	L34445-03	TP-15_16 (2-13)						dry mest
15	L34445-04	TP-20 (1-4)						
16	L34446-01	SB-01_02GT (1.5-6.5)						
17	L34446-02	SB-07GT (4-21)						
18	L34446-03	SB-03_TP-3 (1-5)						
19	L34446-04	TP-6 (7-10)						
20	L34446-05	TP-8 (3.5-13)						

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415221

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 12/22/2016 15:01
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34305-01	ZIPLOCK || In Inorganic Cooler
L34305-02	ZIPLOCK || In Inorganic Cooler
L34305-03	ZIPLOCK || In Inorganic Cooler
L34305-04	ZIPLOCK || In Inorganic Cooler
L34427-01	ZIPLOCK(9) || Composite.
L34427-02	ZIPLOCK(10) || Composite.
L34427-03	ZIPLOCK(5) || Composite.
L34427-04	ZIPLOCK(4) || Composite.
L34427-05	ZIPLOCK(7) || Composite.
L34427-06	ZIPLOCK(8) || Composite.
L34427-07	ZIPLOCK(8) || Composite.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415221

Date Reported: 30-Dec-16
Run ID: R1488401
Date Analyzed: 27-Dec-16
ICAL Workgroup:
Instrument ID: SOILSPREP

L34305-01

Tag: Measured: 12/27/2016 9:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34305-02

Tag: Measured: 12/27/2016 11:34:44 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34305-03

Tag: Measured: 12/27/2016 2:09:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34305-04

Tag: Measured: 12/27/2016 4:44:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-01

Tag: Measured: 12/27/2016 7:18:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-02

Tag: Measured: 12/27/2016 9:53:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-03

Tag: Measured: 12/28/2016 12:28:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-04

Tag: Measured: 12/28/2016 3:03:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-05

Tag: Measured: 12/28/2016 5:37:52 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-06

Tag: Measured: 12/28/2016 8:12:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-07 Tag: Measured: 12/28/2016 10:47:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34445-01 Tag: Measured: 12/28/2016 1:22:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34445-02 Tag: Measured: 12/28/2016 3:56:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34445-03 Tag: Measured: 12/28/2016 6:31:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34445-04 Tag: Measured: 12/28/2016 9:06:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-01 Tag: Measured: 12/28/2016 11:41:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-02 Tag: Measured: 12/29/2016 2:15:44 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-03 Tag: Measured: 12/29/2016 4:50:28 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-04 Tag: Measured: 12/29/2016 7:25:12 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-05 Tag: Measured: 12/29/2016 9:59:56 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

Hot Water Extraction

QC List Type: I-X-HW
QCListMatClass: SOLID
Bench Sheet List: I-X-HW
QC Ref: PBS-DUP
Group ID: SP-G-HW
Method Ref: M80-3 ASA No. 9
SOP Ref: SOPSO004

WG415942

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/10/2017 11:23
Start Date/Time: 01/10/2017 11:30
End Date/Time: 01/10/2017 16:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415942PBS	NONE	<2000		01/10/17 11:30	0	100	5	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/10/17 11:46	20	100	5	
3	L34445-01DUP	NONE	<2000		01/10/17 12:03	20	100	5	
4	L34445-02	TP-12 (2-4)	<2000		01/10/17 12:20	20	100	5	
5	L34445-03	TP-15_16 (2-13)	<2000		01/10/17 12:37	20	100	5	
6	L34445-04	TP-20 (1-4)	<2000		01/10/17 12:54	20	100	5	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/10/17 13:11	20	100	5	
8	L34674-02	SB-07GT (0-4)	<2000		01/10/17 13:28	20	100	5	
9	L34674-03	SB-09GT (8-12)	<2000		01/10/17 13:44	20	100	5	
10	L34674-04	SB-09GT (18-22)	<2000		01/10/17 14:01	20	100	5	
11	L34674-05	SB-12GT (0-27)	<2000		01/10/17 14:18	20	100	5	
12	L34674-06	SB-13AL (0-25)	<2000		01/10/17 14:35	20	100	5	
13	L34674-07	SB-14AL (0-15)	<2000		01/10/17 14:52	20	100	5	
14	L34674-08	SB-14AL (15-35)	<2000		01/10/17 15:09	20	100	5	
15	L34674-09	SB-15AL (0-25)	<2000		01/10/17 15:26	20	100	5	
16	L34674-10	SB-15AL (25-50)	<2000		01/10/17 15:43	20	100	5	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/10/17 15:59	20	100	5	

Report Comments: _____

Internal Comments _____

AREV: BCC 1-11-17
Initials, Date

SREV: 1/11/17
Initials, Date

Hot Water Extraction

QC List Type: I-X-HW
QCListMatClass: SOLID
Bench Sheet List: I-X-HW
QC Ref: PBS-DUP
Group ID: SP-G-HW
Method Ref: M80-3 ASA No. 9
SOP Ref: SOPSO004

WG415942

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/10/2017 11:23
Start Date/Time: 01/10/2017 11:30
End Date/Time: 01/10/2017 16:00

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1/11/17

Approved: [illegible]
Date: 1/11/17

Analyst: BCC

Workgroup: 415942

Analysis Date: 1/10/2017

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?			X
7. Does all the spike information correlate with each other?			X
8. Is the appropriate spike in the computer-designated line?			X
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments: _____

FRMSQ010.02.14.08

Hot Water Extraction

QC List Type: I-X-HW
QCListMatClass: SOLID
Bench Sheet List: I-X-HW
QC Ref: PBS-DUP
Group ID: SP-G-HW
Method Ref: M80-3 ASA No. 9
SOP Ref: SOPSO004

WG415942

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BXC
ACZ Dept: 20
Create Date: 01/10/2017 11:23
Start Date/Time: 1/10/17 11:30a
End Date/Time: 1/10/17 2:00p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415942PBS	NONE				0	100	1	
2	L34445-01	TP-6_7_9 (2-5)				20.000		5x 1	
3	L34445-01DUP	NONE				20.000		1	
4	L34445-02	TP-12 (2-4)				20.000		1	
5	L34445-03	TP-15_16 (2-13)				20.000		1	
6	L34445-04	TP-20 (1-4)				20.000		1	
7	L34674-01	SB-06GT (1.5-10)				20.000		1	
8	L34674-02	SB-07GT (0-4)				20.000		1	
9	L34674-03	SB-09GT (8-12)				20.000		1	
10	L34674-04	SB-09GT (18-22)				20.000		1	
11	L34674-05	SB-12GT (0-27)				20.000		1	
12	L34674-06	SB-13AL (0-25)				20.000		1	
13	L34674-07	SB-14AL (0-15)				20.000		1	
14	L34674-08	SB-14AL (15-35)				20.000		1	
15	L34674-09	SB-15AL (0-25)				20.000		1	
16	L34674-10	SB-15AL (25-50)				20.000		1	
17	L34674-14	SB-09GT (8-12-DUPLIC				20.000		1	

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Hot Water Extraction

QC List Type: I-X-HW
QCListMatClass: SOLID
Bench Sheet List: I-X-HW
QC Ref: PBS-DUP
Group ID: SP-G-HW
Method Ref: M80-3 ASA No. 9
SOP Ref: SOPSO004

WG415942

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/10/2017 11:23
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

L34445-1701201627

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415942

Date Reported: 11-Jan-17
Run ID: R1491347
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

WG415942PBS

Tag: Measured: 1/10/2017 11:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	PREP	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	PREP	0	5		g	NEED					

L34445-01

Tag: Measured: 1/10/2017 11:46:52 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34445-01DUP

Tag: Measured: 1/10/2017 12:03:44 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	PREP	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	PREP	20	5		g	NEED					

L34445-02

Tag: Measured: 1/10/2017 12:20:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34445-03

Tag: Measured: 1/10/2017 12:37:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34445-04

Tag: Measured: 1/10/2017 12:54:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-01

Tag: Measured: 1/10/2017 1:11:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-02

Tag: Measured: 1/10/2017 1:28:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-03

Tag: Measured: 1/10/2017 1:44:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-04

Tag: Measured: 1/10/2017 2:01:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-05

Tag: Measured: 1/10/2017 2:18:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-06

Tag: Measured: 1/10/2017 2:35:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-07

Tag: Measured: 1/10/2017 2:52:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-08

Tag: Measured: 1/10/2017 3:09:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-09

Tag: Measured: 1/10/2017 3:26:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-10

Tag: Measured: 1/10/2017 3:43:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-14

Tag: Measured: 1/10/2017 3:59:52 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415879PBS	NONE	<2000		01/09/17 11:30	0	100	10	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/09/17 11:46	10	100	10	
3	L34445-01DUP	NONE	<2000		01/09/17 12:02	10	100	10	
4	L34445-02	TP-12 (2-4)	<2000		01/09/17 12:18	10	100	10	
5	L34445-03	TP-15_16 (2-13)	<2000		01/09/17 12:35	10	100	10	
6	L34445-04	TP-20 (1-4)	<2000		01/09/17 12:51	10	100	10	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/09/17 13:07	10	100	10	
8	L34674-02	SB-07GT (0-4)	<2000		01/09/17 13:23	10	100	10	
9	L34674-03	SB-09GT (8-12)	<2000		01/09/17 13:40	10	100	10	
10	L34674-04	SB-09GT (18-22)	<2000		01/09/17 13:56	10	100	10	
11	L34674-05	SB-12GT (0-27)	<2000		01/09/17 14:12	10	100	10	
12	L34674-06	SB-13AL (0-25)	<2000		01/09/17 14:28	10	100	10	
13	L34674-07	SB-14AL (0-15)	<2000		01/09/17 14:45	10	100	10	
14	L34674-08	SB-14AL (15-35)	<2000		01/09/17 15:01	10	100	10	
15	L34674-09	SB-15AL (0-25)	<2000		01/09/17 15:17	10	100	10	
16	L34674-10	SB-15AL (25-50)	<2000		01/09/17 15:33	10	100	10	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/09/17 15:50	10	100	10	

Report Comments: _____

Internal Comments _____

AREV: Bcc 1-9-17
Initials, Date

SREV: BPD 1/10/17
Initials, Date

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-09-17

Approved: BRD
Date: 1/10/17

Analyst: BCC

Workgroup: 415879

Analysis Date: 1/9/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?			X
7. Does all the spike information correlate with each other?			X
8. Is the appropriate spike in the computer-designated line?			X
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
2 M KCl Extraction Fluid	SI170109-2	1-10-17

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

ERMSQ010.02.14.08

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 1/9/17 11:30a
End Date/Time: 1/9/17 3:50p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415879PBS	NONE				0	100	1	
2	L34445-01	TP-6_7_9 (2-5)	C2200			10.000		1 10x	
3	L34445-01DUP	NONE				10.000		1	
4	L34445-02	TP-12 (2-4)				10.000		1	
5	L34445-03	TP-15_16 (2-13)				10.000		1	
6	L34445-04	TP-20 (1-4)				10.000		1	
7	L34674-01	SB-06GT (1.5-10)				10.000		1	
8	L34674-02	SB-07GT (0-4)				10.000		1	
9	L34674-03	SB-09GT (8-12)				10.000		1	
10	L34674-04	SB-09GT (18-22)				10.000		1	
11	L34674-05	SB-12GT (0-27)				10.000		1	
12	L34674-06	SB-13AL (0-25)				10.000		1	
13	L34674-07	SB-14AL (0-15)				10.000		1	
14	L34674-08	SB-14AL (15-35)				10.000		1	
15	L34674-09	SB-15AL (0-25)				10.000		1	
16	L34674-10	SB-15AL (25-50)				10.000		1	
17	L34674-14	SB-09GT (8-12-DUPLIC				10.000		1	

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415879

Date Reported: 10-Jan-17
Run ID: R1490913
Date Analyzed: 09-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

WG415879PBS

Tag: Measured: 1/9/2017 11:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	PREP	100	10		mL	+					
SREV	WEIGHT, SAMPLE	PREP	0	10		g	+					

L34445-01

Tag: Measured: 1/9/2017 11:46:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34445-01DUP

Tag: Measured: 1/9/2017 12:02:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	PREP	100	10		mL	+					
SREV	WEIGHT, SAMPLE	PREP	10	10		g	+					

L34445-02

Tag: Measured: 1/9/2017 12:18:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34445-03

Tag: Measured: 1/9/2017 12:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34445-04

Tag: Measured: 1/9/2017 12:51:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-01

Tag: Measured: 1/9/2017 1:07:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-02

Tag: Measured: 1/9/2017 1:23:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-03

Tag: Measured: 1/9/2017 1:40:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-04

Tag: Measured: 1/9/2017 1:56:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-05

Tag: Measured: 1/9/2017 2:12:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-06

Tag: Measured: 1/9/2017 2:28:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-07

Tag: Measured: 1/9/2017 2:45:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-08

Tag: Measured: 1/9/2017 3:01:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-09

Tag: Measured: 1/9/2017 3:17:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-10

Tag: Measured: 1/9/2017 3:33:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-14

Tag: Measured: 1/9/2017 3:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
1	L34445-01	TP-6_7_9 (2-5)	dry		01/04/17 11:00	✔	✔	1/4/2017		1/4/2017								
2	L34445-02	TP-12 (2-4)	dry		01/04/17 12:05	✔	✔	1/4/2017		1/4/2017								
3	L34445-03	TP-15_16 (2-13)	dry		01/04/17 13:10	✔	✔	1/4/2017		1/4/2017								
4	L34445-04	TP-20 (1-4)	dry		01/04/17 14:16	✔	✔	1/4/2017		1/4/2017								
5	L34446-01	SB-01_02GT (1.5-6.5)	dry		01/04/17 15:21	✔	✔	1/4/2017		1/4/2017								
6	L34446-02	SB-07GT (4-21)	dry		01/04/17 16:26	✔	✔	1/4/2017		1/4/2017								
7	L34446-03	SB-03_TP-3 (1-5)	dry		01/04/17 17:32	✔	✔	1/4/2017		1/4/2017								
8	L34446-04	TP-6 (7-10)	dry		01/04/17 18:37	✔	✔	1/4/2017		1/4/2017								
9	L34446-05	TP-8 (3.5-13)	dry		01/04/17 19:43	✔	✔	1/4/2017		1/4/2017								
10	L34446-06	TP-9 (7-14)	dry		01/04/17 20:48	✔	✔	1/4/2017		1/4/2017								
11	L34446-07	TP-12 (7-9)	dry		01/04/17 21:53	✔	✔	1/4/2017		1/4/2017								
12	L34446-08	TP-14 (3-7)	dry		01/04/17 22:59	✔	✔	1/4/2017		1/4/2017								
13	L34446-09	TP-20 (12-14)	dry		01/05/17 0:04	✔	✔	1/4/2017		1/4/2017								
14	L34674-01	SB-06GT (1.5-10)	dry		01/05/17 1:09	✔	✔	1/5/2017		1/5/2017								
15	L34674-02	SB-07GT (0-4)	dry		01/05/17 2:15	✔	✔	1/5/2017		1/5/2017								
16	L34674-03	SB-09GT (8-12)	dry		01/05/17 3:20	✔	✔	1/5/2017		1/5/2017								
17	L34674-04	SB-09GT (18-22)	dry		01/05/17 4:26	✔	✔	1/5/2017		1/5/2017								
18	L34674-05	SB-12GT (0-27)	dry		01/05/17 5:31	✔	✔	1/5/2017		1/5/2017								
19	L34674-06	SB-13AL (0-25)	dry		01/05/17 6:36	✔	✔	1/5/2017		1/5/2017								
20	L34674-07	SB-14AL (0-15)	dry		01/05/17 7:42	✔	✔	1/5/2017		1/5/2017								
21	L34674-08	SB-14AL (15-35)	dry		01/05/17 8:47	✔	✔	1/5/2017		1/5/2017								

Report Comments: _____

Internal Comments _____

AREV: RBT 1/10/17
Initials, Date

SREV: TRD 1/9/17
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
22	L34674-09	SB-15AL (0-25)	dry		01/05/17 9:53	☑	☑	1/5/2017		1/5/2017								
23	L34674-10	SB-15AL (25-50)	dry		01/05/17 10:58	☑	☑	1/5/2017		1/5/2017								
24	L34674-11	SB-01_02GT (1.5-6.5)	dry		01/05/17 12:03	☑	☑	1/5/2017		1/5/2017								
25	L34674-12	TP-6 (7-10)-DUPLICAT	dry		01/05/17 13:09	☑	☑	1/5/2017		1/5/2017								
26	L34674-13	TP-20 (12-14)-DUPLIC	dry		01/05/17 14:14	☑	☑	1/5/2017		1/5/2017								
27	L34674-14	SB-09GT (8-12-DUPLIC	dry		01/05/17 15:19	☑	☑	1/5/2017		1/5/2017								

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: PBJ
Date: 1/6/17
Approved: RD
Date: 1/9/17

Analyst: TJ ✓

Workgroup: WG41562 1

Analysis Date: 1/6/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?		✓	
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments: _____

FRMSO010.07.14.08

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: TN
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:20
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
1	L34445-01	TP-6_7_9 (2-5)			01/04/17	✓	✓											
2	L34445-02	TP-12 (2-4)				✓	✓											
3	L34445-03	TP-15_16 (2-13)				✓	✓											
4	L34445-04	TP-20 (1-4)				✓	✓											
5	L34446-01	SB-01_02GT (1.5-6.5)				✓	✓											
6	L34446-02	SB-07GT (4-21)				✓	✓											
7	L34446-03	SB-03_TP-3 (1-5)				✓	✓											
8	L34446-04	TP-6 (7-10)				✓	✓											
9	L34446-05	TP-8 (3.5-13)				✓	✓											
10	L34446-06	TP-9 (7-14)				✓	✓											
11	L34446-07	TP-12 (7-9)				✓	✓											
12	L34446-08	TP-14 (3-7)				✓	✓											
13	L34446-09	TP-20 (12-14)				✓	✓											
14	L34674-01	SB-06GT (1.5-10)			01/05/17	✓	✓											
15	L34674-02	SB-07GT (0-4)				✓	✓											
16	L34674-03	SB-09GT (8-12)				✓	✓											
17	L34674-04	SB-09GT (18-22)				✓	✓											
18	L34674-05	SB-12GT (0-27)				✓	✓											
19	L34674-06	SB-13AL (0-25)				✓	✓											
20	L34674-07	SB-14AL (0-15)				✓	✓											
21	L34674-08	SB-14AL (15-35)				✓	✓											

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
22	L34674-09	SB-15AL (0-25)			01/05/17	☑	☑											
23	L34674-10	SB-15AL (25-50)				☑	☑											
24	L34674-11	SB-01_02GT (1.5-6.5)				☑	☑											
25	L34674-12	TP-6 (7-10)-DUPLICAT				☑	☑											
26	L34674-13	TP-20 (12-14)-DUPLIC				☑	☑											
27	L34674-14	SB-09GT (8-12-DUPLIC				☑	☑											

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415621

Date Reported: 09-Jan-17
Run ID: R1490404
Date Analyzed: 04-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

L34445-01

Tag:

Measured: 1/4/2017 11:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-02

Tag:

Measured: 1/4/2017 12:05:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-03

Tag:

Measured: 1/4/2017 1:10:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-04

Tag:

Measured: 1/4/2017 2:16:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34446-01

Tag:

Measured: 1/4/2017 3:21:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-02

Tag:

Measured: 1/4/2017 4:26:55 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-03

Tag:

Measured: 1/4/2017 5:32:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-04

Tag:

Measured: 1/4/2017 6:37:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-05

Tag: Measured: 1/4/2017 7:43:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-06

Tag: Measured: 1/4/2017 8:48:27 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-07

Tag: Measured: 1/4/2017 9:53:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-08

Tag: Measured: 1/4/2017 10:59:13 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-09

Tag: Measured: 1/5/2017 12:04:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-01

Tag: Measured: 1/5/2017 1:09:59 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-02

Tag: Measured: 1/5/2017 2:15:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-03

Tag: Measured: 1/5/2017 3:20:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-04

Tag: Measured: 1/5/2017 4:26:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-05

Tag: Measured: 1/5/2017 5:31:31 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-06

Tag: Measured: 1/5/2017 6:36:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-07

Tag: Measured: 1/5/2017 7:42:17 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-08

Tag: Measured: 1/5/2017 8:47:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-09

Tag: Measured: 1/5/2017 9:53:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-10

Tag: Measured: 1/5/2017 10:58:26 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-11

Tag: Measured: 1/5/2017 12:03:49 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-12

Tag: Measured: 1/5/2017 1:09:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-13

Tag: Measured: 1/5/2017 2:14:35 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-14 **Tag:** **Measured:** **1/5/2017 3:19:58 PM**

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

Saturated Paste

QC List Type: I-X-SP
QCListMatClass: SOLID
Bench Sheet List: I-X-SP
QC Ref: SP-SP
Group ID: SP-G-SP
Method Ref: USDA No. 60 (2)
SOP Ref: SOPSO008

WG415901

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: rbt
ACZ Dept: 20
Create Date: 01/09/2017 14:13
Start Date/Time: 01/09/2017 14:15
End Date/Time: 01/09/2017 14:45

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	CA SP	EC SP	K SP	MG SP	NA SP	PH SP	SAT PCNT	SAT PASTE	Comments
1	L34445-01	TP-6_7_9 (2-5)	<2000		01/09/17 14:15	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
2	L34445-02	TP-12 (2-4)	<2000		01/09/17 14:17	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
3	L34445-03	TP-15_16 (2-13)	<2000		01/09/17 14:19	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
4	L34445-04	TP-20 (1-4)	<2000		01/09/17 14:21	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
5	L34445-04DUP	NONE	<2000		01/09/17 14:23	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
6	L34674-01	SB-06GT (1.5-10)	<2000		01/09/17 14:25	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
7	L34674-02	SB-07GT (0-4)	<2000		01/09/17 14:27	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
8	L34674-03	SB-09GT (8-12)	<2000		01/09/17 14:29	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
9	L34674-04	SB-09GT (18-22)	<2000		01/09/17 14:31	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
10	L34674-05	SB-12GT (0-27)	<2000		01/09/17 14:33	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
11	L34674-06	SB-13AL (0-25)	<2000		01/09/17 14:35	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
12	L34674-07	SB-14AL (0-15)	<2000		01/09/17 14:37	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
13	L34674-08	SB-14AL (15-35)	<2000		01/09/17 14:39	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
14	L34674-09	SB-15AL (0-25)	<2000		01/09/17 14:41	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
15	L34674-10	SB-15AL (25-50)	<2000		01/09/17 14:43	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
16	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/09/17 14:45	✓	✓	✓	✓	✓	✓	✓	1/9/2017	

Report Comments: _____

Internal Comments _____

AREV: RBT 1/9/17
Initials, Date

SREV: BRD 1/9/17
Initials, Date

Saturated Paste

QC List Type: I-X-SP
QCListMatClass: SOLID
Bench Sheet List: I-X-SP
QC Ref: SP-SP
Group ID: SP-G-SP
Method Ref: USDA No. 60 (2)
SOP Ref: SOPSO008

WG415901

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: rbt
ACZ Dept: 20
Create Date: 01/09/2017 14:13
Start Date/Time: 01/09/2017 14:15
End Date/Time: 01/09/2017 14:45

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBJ
Date: 1/9/17
Approved: SKD
Date: 1/9/17

Analyst: RBJ

Workgroup: WG415901

Analysis Date: 1/9/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000 <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?			✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.07.14.08

Saturated Paste

QC List Type: I-X-SP
QCListMatClass: SOLID
Bench Sheet List: I-X-SP
QC Ref: SP-SP
Group ID: SP-G-SP
Method Ref: USDA No. 60 (2)
SOP Ref: SOPSO008

WG415901

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: RDT
ACZ Dept: 20
Create Date: 01/09/2017 14:13
Start Date/Time: 1/9/17 2:15p
End Date/Time: 1/9/17 2:45p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	CA SP	EC SP	K SP	MG SP	NA SP	PH SP	SAT PCNT	SAT PASTE	Comments
1	L34445-01	TP-6_7_9 (2-5)				✓	✓	✓	✓	✓	✓	✓		
2	L34445-02	TP-12 (2-4)				✓	✓	✓	✓	✓	✓	✓		
3	L34445-03	TP-15_16 (2-13)				✓	✓	✓	✓	✓	✓	✓		
4	L34445-04	TP-20 (1-4)				✓	✓	✓	✓	✓	✓	✓		
5	L34445-04DUP	NONE				✓	✓	✓	✓	✓	✓	✓		
6	L34674-01	SB-06GT (1.5-10)				✓	✓	✓	✓	✓	✓	✓		
7	L34674-02	SB-07GT (0-4)				✓	✓	✓	✓	✓	✓	✓		
8	L34674-03	SB-09GT (8-12)				✓	✓	✓	✓	✓	✓	✓		
9	L34674-04	SB-09GT (18-22)				✓	✓	✓	✓	✓	✓	✓		
10	L34674-05	SB-12GT (0-27)				✓	✓	✓	✓	✓	✓	✓		
11	L34674-06	SB-13AL (0-25)				✓	✓	✓	✓	✓	✓	✓		
12	L34674-07	SB-14AL (0-15)				✓	✓	✓	✓	✓	✓	✓		
13	L34674-08	SB-14AL (15-35)				✓	✓	✓	✓	✓	✓	✓		
14	L34674-09	SB-15AL (0-25)				✓	✓	✓	✓	✓	✓	✓		
15	L34674-10	SB-15AL (25-50)				✓	✓	✓	✓	✓	✓	✓		
16	L34674-14	SB-09GT (8-12-DUPLIC				✓	✓	✓	✓	✓	✓	✓		

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Saturated Paste

QC List Type: I-X-SP
QCListMatClass: SOLID
Bench Sheet List: I-X-SP
QC Ref: SP-SP
Group ID: SP-G-SP
Method Ref: USDA No. 60 (2)
SOP Ref: SOPSO008

WG415901

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/09/2017 14:13
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

L34445-1701201627

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415901

Date Reported: 09-Jan-17
Run ID: R1490907
Date Analyzed: 09-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

L34445-01

Tag: Measured: 1/9/2017 2:15:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34445-02

Tag: Measured: 1/9/2017 2:17:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34445-03

Tag: Measured: 1/9/2017 2:19:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34445-04

Tag: Measured: 1/9/2017 2:21:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34445-04DUP

Tag: Measured: 1/9/2017 2:23:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	REPDATE		1			NEED					

L34674-01

Tag: Measured: 1/9/2017 2:25:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-02

Tag: Measured: 1/9/2017 2:27:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-03

Tag: Measured: 1/9/2017 2:29:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-04

Tag: Measured: 1/9/2017 2:31:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-05

Tag: Measured: 1/9/2017 2:33:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-06

Tag: Measured: 1/9/2017 2:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-07

Tag: Measured: 1/9/2017 2:37:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-08

Tag: Measured: 1/9/2017 2:39:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-09

Tag: Measured: 1/9/2017 2:41:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-10

Tag: Measured: 1/9/2017 2:43:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-14

Tag: Measured: 1/9/2017 2:45:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

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Run Log by Workgroup

Monsanto Company
Project ID: L34445

Soil Preparation

WG415221 **Air Dry**

Sample	Date	SCN	SP AIRDRY
L34305-01	12/27/16 09:00		X
L34305-02	12/27/16 11:34		X
L34305-03	12/27/16 14:09		X
L34305-04	12/27/16 16:44		X
L34427-01	12/27/16 19:18		X
L34427-02	12/27/16 21:53		X
L34427-03	12/28/16 00:28		X
L34427-04	12/28/16 03:03		X
L34427-05	12/28/16 05:37		X
L34427-06	12/28/16 08:12		X
L34427-07	12/28/16 10:47		X
L34445-01	12/28/16 13:22		X
L34445-02	12/28/16 15:56		X
L34445-03	12/28/16 18:31		X
L34445-04	12/28/16 21:06		X
L34446-01	12/28/16 23:41		X
L34446-02	12/29/16 02:15		X
L34446-03	12/29/16 04:50		X
L34446-04	12/29/16 07:25		X
L34446-05	12/29/16 09:59		X

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Soil Analysis

WG415224 **Sample Weight**

Sample	Date	SCN	WEIGHT, SAMPLE
L34427-01	01/20/17 08:00		
L34427-02	01/20/17 08:18		
L34427-03	01/20/17 08:36		
L34427-04	01/20/17 08:54		
L34427-05	01/20/17 09:12		
L34427-06	01/20/17 09:30		
L34427-07	01/20/17 09:48		
L34445-01	01/20/17 10:06		
L34445-02	01/20/17 10:24		
L34445-03	01/20/17 10:42		
L34445-04	01/20/17 11:00		

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Run Log by Workgroup

Monsanto Company
Project ID: L34445

Soil Analysis

WG415419 **Percent Solids**

Sample	Date	SCN	ERCENT MOISTUR	PERCENT SOLID
WG415419PBS	12/29/16 11:00			X
L34305-01	12/29/16 12:16			X
L34305-01DUP	12/29/16 13:33		X	X
L34305-02	12/29/16 14:50			X
L34305-03	12/29/16 16:07			X
L34305-04	12/29/16 17:24			X
L34425-01	12/29/16 18:41			X
L34445-01	12/29/16 19:57			X
L34445-02	12/29/16 21:14			X
L34445-03	12/29/16 22:31			X
L34445-04	12/29/16 23:48			X
L34446-01	12/30/16 01:05			X
L34446-02	12/30/16 02:22			X
L34446-03	12/30/16 03:39			X
L34446-04	12/30/16 04:55			X
L34446-05	12/30/16 06:12			X
L34446-06	12/30/16 07:29			X
L34446-07	12/30/16 08:46			X
L34446-08	12/30/16 10:03			X
L34446-09	12/30/16 11:20			X

Monsanto Company
Project ID: L34445

Soil Preparation

WG415621 **Soil Prep Sieve**

Sample	Date	SCN	SP SIEVE2000	SP SIEVE250
L34445-01	01/04/17 11:00		X	X
L34445-02	01/04/17 12:05		X	X
L34445-03	01/04/17 13:10		X	X
L34445-04	01/04/17 14:16		X	X
L34446-01	01/04/17 15:21		X	X
L34446-02	01/04/17 16:26		X	X
L34446-03	01/04/17 17:32		X	X
L34446-04	01/04/17 18:37		X	X
L34446-05	01/04/17 19:43		X	X
L34446-06	01/04/17 20:48		X	X
L34446-07	01/04/17 21:53		X	X
L34446-08	01/04/17 22:59		X	X
L34446-09	01/05/17 00:04		X	X
L34674-01	01/05/17 01:09		X	X
L34674-02	01/05/17 02:15		X	X
L34674-03	01/05/17 03:20		X	X
L34674-04	01/05/17 04:26		X	X
L34674-05	01/05/17 05:31		X	X
L34674-06	01/05/17 06:36		X	X
L34674-07	01/05/17 07:42		X	X
L34674-08	01/05/17 08:47		X	X
L34674-09	01/05/17 09:53		X	X
L34674-10	01/05/17 10:58		X	X
L34674-11	01/05/17 12:03		X	X
L34674-12	01/05/17 13:09		X	X
L34674-13	01/05/17 14:14		X	X

Monsanto Company

Project ID: L34445

Soil Preparation

WG415621 **Soil Prep Sieve**

Sample	Date	SCN	SP SIEVE2000	SP SIEVE250
L34674-14	01/05/17 15:19		X	X

Monsanto Company

Project ID: L34445

Soil Preparation

WG415785 **3050 ICP ICPMS**

Sample	Date	SCN	DILUTION
WG415785PBS	01/06/17 10:00		X
WG415785LCSS1	01/06/17 14:44		X
WG415785LCSSD 1	01/06/17 19:28		X
WG415785LCSS2	01/07/17 00:12		X
WG415785LCSSD 2	01/07/17 04:57		X
L34445-01	01/07/17 09:41		X
L34445-02	01/07/17 14:25		X
L34445-03	01/07/17 19:09		X
L34445-04	01/07/17 23:54		X
L34445-04MS	01/08/17 04:38		X
L34445-04MSD	01/08/17 09:22		X
L34446-01	01/08/17 14:07		X
L34446-02	01/08/17 18:51		X
L34446-03	01/08/17 23:35		X
L34446-04	01/09/17 04:19		X
L34446-05	01/09/17 09:04		X
L34446-06	01/09/17 13:48		X
L34446-07	01/09/17 18:32		X
L34446-07MS	01/09/17 23:17		X
L34446-07MSD	01/10/17 04:01		X
L34446-08	01/10/17 08:45		X
L34446-09	01/10/17 13:29		X

Monsanto Company

Project ID: L34445

Soil Preparation

WG415901 **Saturated Paste**

Sample	Date	SCN	SATURATION PAST
L34445-01	01/09/17 14:15		X
L34445-02	01/09/17 14:17		X
L34445-03	01/09/17 14:19		X
L34445-04	01/09/17 14:21		X
L34445-04DUP	01/09/17 14:23		X
L34674-01	01/09/17 14:25		X
L34674-02	01/09/17 14:27		X
L34674-03	01/09/17 14:29		X
L34674-04	01/09/17 14:31		X
L34674-05	01/09/17 14:33		X
L34674-06	01/09/17 14:35		X
L34674-07	01/09/17 14:37		X
L34674-08	01/09/17 14:39		X
L34674-09	01/09/17 14:41		X
L34674-10	01/09/17 14:43		X
L34674-14	01/09/17 14:45		X

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Run Log by Workgroup

Monsanto Company
Project ID: L34445

Soil Analysis

WG415921 **Saturated Paste**

Sample	Date	SCN	CONDUCTIVITY	IAX PARTICLE SIZI	SAT PCNT	PH
L34445-01	01/10/17 08:30		X		X	X
L34445-02	01/10/17 09:42		X		X	X
L34445-03	01/10/17 10:55		X		X	X
L34445-04	01/10/17 12:08		X		X	X
L34445-04DUP	01/10/17 13:21		X		X	X
L34674-01	01/10/17 14:34		X		X	X
L34674-02	01/10/17 15:47		X		X	X
L34674-03	01/10/17 16:59		X		X	X
L34674-04	01/10/17 18:12		X		X	X
L34674-05	01/10/17 19:25		X		X	X
L34674-06	01/10/17 20:38		X		X	X
L34674-07	01/10/17 21:51		X		X	X
L34674-08	01/10/17 23:04		X		X	X
L34674-09	01/11/17 00:17		X		X	X
L34674-10	01/11/17 01:29		X			X
L34674-14	01/11/17 02:42		X		X	X
WG415921CCV1	01/11/17 03:55	PCN50759				X
WG415921CCV2	01/11/17 05:08	PCN50759				X
WG415921ICV	01/11/17 09:59	PCN50759				X

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Wet Chemistry

WG415949 **NH3-KCL**

Sample	Date	SCN	AMMONIA
WG415949ICV	01/10/17 12:36	WI170103-8	X
WG415949ICB	01/10/17 12:37		X
WG415949LFB	01/10/17 12:39	WI161026-1	X
WG415879PBS	01/10/17 12:40		X
L34445-01	01/10/17 12:42		X
L34445-01DUP	01/10/17 12:43		X
L34445-02	01/10/17 12:45		X
L34445-02AS	01/10/17 12:46	WI161026-1	X
L34445-03	01/10/17 12:47		X
L34445-04	01/10/17 12:49		X
L34674-01	01/10/17 12:50		X
L34674-02	01/10/17 12:52		X
WG415949CCV1	01/10/17 12:53	WI161031-9	X
WG415949CCB1	01/10/17 12:55		X
L34674-03	01/10/17 12:56		X
L34674-04	01/10/17 12:57		X
L34674-05	01/10/17 12:59		X
L34674-06	01/10/17 13:00		X
L34674-07	01/10/17 13:02		X
L34674-07DUP	01/10/17 13:03		X
L34674-08	01/10/17 13:04		X
L34674-08AS	01/10/17 13:06	WI161026-1	X
L34674-09	01/10/17 13:07		X
L34674-10	01/10/17 13:09		X
WG415949CCV2	01/10/17 13:10	WI161031-9	X
WG415949CCB2	01/10/17 13:12		X

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Wet Chemistry

WG415949 **NH3-KCL**

Sample	Date	SCN	AMMONIA
L34674-14	01/10/17 13:13		X
WG415949CCV3	01/10/17 13:18	WI161031-9	X
WG415949CCB3	01/10/17 13:19		X

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Metals Analysis

WG415985 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Mo	Se	U
WG415985ICV	01/10/17 19:52	MS161128-3	X	X	X	X	X
WG415985ICB	01/10/17 19:54		X	X	X	X	X
WG415985ICSA	01/10/17 19:56		X	X		X	X
WG415985ICSAB	01/10/17 19:58	MS161201-10	X	X	X	X	X
WG415785PBS	01/10/17 20:02		X	X	X	X	X
WG415785LCSS1	01/10/17 20:04	PCN52516	X	X	X	X	X
WG415785LCSSD1	01/10/17 20:06	PCN52516	X	X	X	X	X
L34445-01	01/10/17 20:08		X	X	X	X	X
L34445-02	01/10/17 20:10		X	X	X	X	X
L34445-03	01/10/17 20:12		X	X	X	X	X
L34445-04	01/10/17 20:14		X	X	X	X	X
WG415985CCV1	01/10/17 20:16	MS161201-14	X	X	X	X	X
WG415985CCB1	01/10/17 20:18		X	X	X	X	X
L34446-01	01/10/17 20:20		X	X		X	X
L34446-02	01/10/17 20:22		X	X		X	X
L34446-03	01/10/17 20:24		X	X		X	X
L34446-04	01/10/17 20:26		X	X		X	X
L34446-05	01/10/17 20:28		X	X		X	X
L34446-06	01/10/17 20:30		X	X		X	X
L34446-07	01/10/17 20:32		X	X		X	X
L34446-07MS	01/10/17 20:34	MS161205-2	X	X	X	X	X
L34446-07MSD	01/10/17 20:36	MS161205-2	X	X	X	X	X
L34446-08	01/10/17 20:38		X	X		X	X
WG415985CCV2	01/10/17 20:40	MS161201-14	X	X	X	X	X
WG415985CCB2	01/10/17 20:42		X	X	X	X	X
L34446-09	01/10/17 20:44		X	X		X	X

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Run Log by Workgroup

Monsanto Company
Project ID: L34445

Metals Analysis

WG415985 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Mo	Se	U
L34446-09SDL	01/10/17 20:46		X	X	X	X	X
WG415985CCV3	01/10/17 20:48	MS161201-14	X	X	X	X	X
WG415985CCB3	01/10/17 20:50		X	X	X	X	X

Monsanto Company

Project ID: L34445

Wet Chemistry

WG415988 **N-NO3NO2-KCL**

Sample	Date	SCN	NITRATE/NITRITE	NITRITE
WG415988ICV	01/10/17 20:55	WI161209-3	X	X
WG415988ICB	01/10/17 20:56		X	X
WG415988LFB	01/10/17 21:00	WI170104-22	X	X
WG415879PBS	01/10/17 21:01		X	X
L34445-01	01/10/17 21:02		X	X
L34445-01DUP	01/10/17 21:04		X	X
L34445-02	01/10/17 21:05		X	X
L34445-02AS	01/10/17 21:06	WI170104-22	X	X
L34445-03	01/10/17 21:07		X	X
L34445-04	01/10/17 21:09		X	X
WG415988CCV1	01/10/17 21:10	WI170104-24	X	X
WG415988CCB1	01/10/17 21:13		X	X
L34674-01	01/10/17 21:14		X	X
L34674-02	01/10/17 21:15		X	X
L34674-03	01/10/17 21:16		X	X
L34674-04	01/10/17 21:18		X	X
L34674-05	01/10/17 21:19		X	X
L34674-06	01/10/17 21:20		X	X
L34674-07	01/10/17 21:21		X	X
L34674-08	01/10/17 21:23		X	X
L34674-09	01/10/17 21:24		X	X
L34674-10	01/10/17 21:25		X	X
WG415988CCV2	01/10/17 21:26	WI170104-24	X	X
WG415988CCB2	01/10/17 21:29		X	X
L34674-14	01/10/17 21:31		X	X
WG415988CCV3	01/10/17 21:33	WI170104-24	X	X

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Run Log by Workgroup

Monsanto Company
Project ID: L34445

Wet Chemistry

WG415988 **N-NO3NO2-KCL**

Sample	Date	SCN	NITRATE/NITRITE	NITRITE
WG415988CCB3	01/10/17 21:36		X	X

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Run Log by Workgroup

Monsanto Company
Project ID: L34445

Metals Analysis

WG416011 **Saturated Paste**

Sample	Date	SCN	Ca	K	Mg	Na
WG416011ICV	01/11/17 10:07	II161209-1	X	X	X	X
WG416011ICB	01/11/17 10:10		X	X	X	X
WG416011PQV	01/11/17 10:13	II161228-3	X	X	X	X
WG416011ICSAB	01/11/17 10:17	II161031-5	X	X	X	X
L34445-01	01/11/17 10:23		X	X	X	X
L34445-02	01/11/17 10:26		X	X	X	X
L34445-03	01/11/17 10:29		X	X	X	X
L34445-04	01/11/17 10:32		X	X	X	X
L34445-04DUP	01/11/17 10:36		X	X	X	X
L34674-01	01/11/17 10:39		X	X	X	X
L34674-02	01/11/17 10:42		X	X	X	X
L34674-03	01/11/17 10:45		X	X	X	X
L34674-04	01/11/17 10:48		X	X	X	X
L34674-05	01/11/17 10:51		X	X	X	X
WG416011CCV1	01/11/17 10:55	II161227-1	X	X	X	X
WG416011CCB1	01/11/17 10:58		X	X	X	X
L34674-06	01/11/17 11:01		X	X	X	X
L34674-07	01/11/17 11:04		X	X	X	X
L34674-08	01/11/17 11:07		X	X	X	X
L34674-09	01/11/17 11:11		X	X	X	X
L34674-10	01/11/17 11:14		X	X	X	X
L34674-14	01/11/17 11:17		X	X	X	X
WG416011CCV2	01/11/17 11:20	II161227-1	X	X	X	X
WG416011CCB2	01/11/17 11:23		X	X	X	X

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Run Log by Workgroup

Monsanto Company
Project ID: L34445

Metals Analysis

WG416030 **ICP HW**

Sample	Date	SCN	B	Cd	Cd	K	Mo	Se
WG416030ICV	01/11/17 16:09	II161209-1	X	X	X	X	X	X
WG416030ICB	01/11/17 16:12		X	X	X	X	X	X
WG416030PQV	01/11/17 16:15	II161228-3	X					
WG416030ICSAB	01/11/17 16:18	II161031-5	X					
WG415942PBS	01/11/17 16:25		X					
L34445-01	01/11/17 16:28		X					
L34445-01DUP	01/11/17 16:31		X					
L34445-02	01/11/17 16:34		X					
L34445-03	01/11/17 16:37		X					
L34445-04	01/11/17 16:41		X					
L34674-01	01/11/17 16:44		X					
L34674-01AS	01/11/17 16:47	II170109-2	X					
L34674-01ASD	01/11/17 16:50	II170109-2	X					
L34674-02	01/11/17 16:53		X					
WG416030CCV1	01/11/17 16:57	II161227-1	X					
WG416030CCB1	01/11/17 17:00		X					
L34674-03	01/11/17 17:03		X					
L34674-04	01/11/17 17:06		X					
L34674-04SDL	01/11/17 17:09		X					
L34674-05	01/11/17 17:12		X					
L34674-06	01/11/17 17:16		X					
L34674-07	01/11/17 17:19		X					
L34674-08	01/11/17 17:22		X					
L34674-09	01/11/17 17:25		X					
L34674-10	01/11/17 17:28		X					
L34674-14	01/11/17 17:32		X					

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Metals Analysis

WG416030 **ICP HW**

Sample	Date	SCN	B	Cd	Cd	K	Mo	Se
WG416030CCV2	01/11/17 17:35	II161227-1	X					
WG416030CCB2	01/11/17 17:38		X					
WG416030CCV3	01/11/17 17:41	II161227-1	X					
WG416030CCB3	01/11/17 17:44		X					

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Metals Analysis

WG416259 **ICP 3050**

Sample	Date	SCN	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Cd	Co	Cr	Cr	Cu	Fe	Fe	Ga	K	Li	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	SiO2	Sn	Sr	Ti	Tl	V	Zn
WG416259ICV	01/16/17 14:32	II161203-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG416259ICB	01/16/17 14:35		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG416259PQV	01/16/17 14:38	II161228-3																									X												
WG416259ICSAB	01/16/17 14:41	II161206-1																									X												
WG415785PBS	01/16/17 14:48																										X												
WG415785LCSS2	01/16/17 14:51	PCN52708																									X												
WG415785LCSSD2	01/16/17 14:54	PCN52708																									X												
L34445-01	01/16/17 14:57																																						
L34445-02	01/16/17 15:00																										X												
L34445-02SDL	01/16/17 15:03																										X												
L34445-03	01/16/17 15:06																										X												
L34445-04	01/16/17 15:10																										X												
L34445-04MS	01/16/17 15:13	II170109-2																									X												
L34445-04MSD	01/16/17 15:16	II170109-2																									X												
WG416259CCV	01/16/17 15:19	II161221-2																									X												
WG416259CCB	01/16/17 15:22																										X												

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Metals Analysis

WG416282 **ICP 3050**

Sample	Date	SCN	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Cd	Co	Cr	Cr	Cu	Fe	Fe	Ga	K	Li	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	SiO2	Sn	Sr	Ti	Tl	V	Zn
WG416282ICV	01/16/17 16:48	II161203-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG416282ICB	01/16/17 16:51		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG416282PQV	01/16/17 16:54	II161228-3																									X												
WG416282ICSAB	01/16/17 16:58	II161206-1																									X												
WG415785PBS	01/16/17 17:04																										X												
WG415785LCSS2	01/16/17 17:07	PCN52708																									X												
WG415785LCSSD2	01/16/17 17:10	PCN52708																									X												
L34445-01	01/16/17 17:13																										X												
L34445-01SDL	01/16/17 17:16																										X												
L34445-04	01/16/17 17:20																										X												
L34445-04MS	01/16/17 17:23	II5XSOIL																									X												
L34445-04MSD	01/16/17 17:26	II5XSOIL																									X												
WG416282CCV	01/16/17 17:29	II161221-2																									X												
WG416282CCB	01/16/17 17:32																										X												

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Soil Analysis

WG416304 **Carbon**

Sample	Date	SCN	TC	TIC	TOC
L34445-01	01/17/17 09:00		X		X
L34445-01DUP	01/17/17 12:15		X	X	X
L34445-02	01/17/17 15:31		X		X
L34445-03	01/17/17 18:47		X		X
L34445-04	01/17/17 22:03		X		X
L34674-01	01/18/17 01:19		X		X
L34674-02	01/18/17 04:35		X		X
L34674-03	01/18/17 07:51		X		X
L34674-04	01/18/17 11:07		X		X
L34674-05	01/18/17 14:22		X		X
L34674-06	01/18/17 17:38		X		X
L34674-07	01/18/17 20:54		X		X
L34674-08	01/19/17 00:10		X		X
L34674-09	01/19/17 03:26		X		X
L34674-10	01/19/17 06:42		X		X
L34674-14	01/19/17 09:58		X		X
WG416304LCSS	01/19/17 13:14	PCN52724	X	X	X
WG416304PBS	01/19/17 16:30		X	X	X

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Metals Analysis

WG416336 **CEC**

Sample	Date	SCN	Na
WG416336ICV	01/18/17 10:58	II170112-1	X
WG416336ICB	01/18/17 11:01		X
WG416336PQV	01/18/17 11:04	II161228-3	X
WG416336ICSAB	01/18/17 11:07	II161031-5	X
WG416214PBS	01/18/17 11:14		X
L34445-01DUP	01/18/17 11:20		X
L34674-01AS	01/18/17 11:36	IICECSPIKE	X
L34674-01ASD	01/18/17 11:39	IICECSPIKE	X
WG416336CCV1	01/18/17 11:46	II161227-1	X
WG416336CCB1	01/18/17 11:49		X
L34674-04SDL	01/18/17 11:58		X
WG416336CCV2	01/18/17 12:24	II161227-1	X
WG416336CCB2	01/18/17 12:27		X

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Run Log by Workgroup

Monsanto Company
Project ID: L34445

Soil Analysis

WG416430 **Organic Matter**

Sample	Date	SCN	ORGANIC MATTER
WG416430PBS	01/17/17 13:30		X
WG416430LCSS	01/17/17 14:40	PCN45409	X
L34445-01	01/17/17 15:50		X
L34445-01DUP	01/17/17 17:00		X
L34445-02	01/17/17 18:10		X
L34445-03	01/17/17 19:20		X
L34445-04	01/17/17 20:30		X
L34674-01	01/17/17 21:40		X
L34674-02	01/17/17 22:50		X
L34674-03	01/18/17 00:00		X
WG416430CCB1	01/18/17 01:10		X
WG416430CCV1	01/18/17 02:20	PCN45434	X
L34674-04	01/18/17 03:30		X
L34674-05	01/18/17 04:40		X
L34674-06	01/18/17 05:50		X
L34674-07	01/18/17 07:00		X
L34674-08	01/18/17 08:10		X
L34674-09	01/18/17 09:20		X
L34674-10	01/18/17 10:30		X
L34674-14	01/18/17 11:40		X
WG416430CCB2	01/18/17 12:50		X
WG416430CCV2	01/18/17 14:00	PCN45434	X

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Run Log by Workgroup

Monsanto Company

Project ID: L34445

Soil Analysis

WG416470 **Sulfur total**

Sample	Date	SCN	SULFUR TOTAL
WG416470PBS	01/18/17 10:30		X
WG416470LCSS	01/18/17 10:53	PCN52722	X
L34445-01	01/18/17 11:16		X
L34445-01MS	01/18/17 11:40	PCN49456	X
L34445-01DUP	01/18/17 12:03		X
L34445-02	01/18/17 12:26		X
L34445-03	01/18/17 12:50		X
L34445-04	01/18/17 13:13		X
L34674-01	01/18/17 13:36		X
L34674-02	01/18/17 14:00		X
L34674-03	01/18/17 14:23		X
L34674-04	01/18/17 14:46		X
L34674-05	01/18/17 15:10		X
L34674-06	01/18/17 15:33		X
L34674-07	01/18/17 15:56		X
L34674-08	01/18/17 16:20		X
L34674-09	01/18/17 16:43		X
L34674-10	01/18/17 17:06		X
L34674-14	01/18/17 17:30		X

ACZ Laboratories, Inc.

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Sample Receipt

Monsanto Company
4512184569

ACZ Project ID: L34445
Date Received: 12/06/2016 14:17
Received By:
Date Printed: 12/6/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	X		

A change was made in the Copy of Report to: and Remarks section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA25203	5.6	NA	14	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID:	L34445
Date Received:	12/06/2016 14:17
Received By:	
Date Printed:	12/6/2016

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. 134445

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com

Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc

E-mail: leah@wolfmartininc.com, Rbenedetti@[redacted]@stratageotech.com
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com

Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: R.Benedetti **Sampler's Site Information** **State** Idaho **Zip code** 83276 **Time Zone** -7:00

***Sampler's Signature:** [signature] I attest to the authenticity and validity of this sample. I understand that mislabeling the time/date/location, or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See attached list #1	See attached list #2						
TP-6_7_9 (2-5)	8-24-16	SO	1 ea	X							
TP-12 (2-4)	8-25-16	SO	1 ea	X							
TP-15_16 (2-13)	8-25-16	SO	1 ea	X							
TP-20 (1-4)	8-25-16	SO	1 ea	X							

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Chain of custody (2 of 2), Lists #1 and #2 of required testing for all samples are attached

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Rocky Benedetti	12-2-16 2:00PM	NK	12/6/16 1410

FRMAD050.03.14.13 White - Return with sample. Yellow - Retain for your records.

L34445 Chain of Custody

List # 1

Agronomic / Soil Chemistry Testing Program

Tests/Methods
• Arsenic (EPA 6020) • Boron (EPA 6010B) • Cadmium (EPA 6020) • Calcium (EPA 6010B) • Cation Exchange Capacity (USDA No. 60 (19) • Magnesium, soluble (EPA 6010B) • Molybdenum (EPA 6020) • Phosphorus (EPA 6010B) • Potassium (EPA 6010B) • Selenium, soluble (EPA 6020) • Uranium (EPA 6020) • Conductivity (SM2510B) • pH (EPA 600/2-78-054-3.2.2 • Carbon, total (ASA No. 9 29-2.2.4) • Carbon, total organic (ASA No. 9 29-2.2.4) • Organic Matter (USDA No. 60) • Saturation Percent (USDA No. 60) • Sulfur (ASTM D-4239-85C) • Nitrate as N (Calculation) • Nitrate/Nitrite (EPA 353.2) • Nitrite as N (EPA 353.2) • Nitrogen, ammonia (EPA 350.1)

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

January 19, 2017

Report to:
Molly Prickett
Monsanto Company
1853 Hwy 34 N
Soda Springs, ID 83276

Bill to:
Molly Pricket
Monsanto Company
1853 Highway 34
Soda Springs, ID 83276

cc: Leah Wolf Martin, Rocky Benedetti

Project ID: 4512184569
ACZ Project ID: L34446

Molly Prickett:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 06, 2016. This project has been assigned to ACZ's project number, L34446. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L34446. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after February 18, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

MONSANTO COMPANY

Level IV Data Package – L34446
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    b. Chain of Custody – Copy

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Summary

ACZ Project ID: ***L34446***

SAMPLE ID	LAB NO.	SAMPLE DATE	SAMPLE TIME
SB-01_02GT (1.5-6.5)	L34446-01	9/9/2016	0:00
SB-07GT (4-21)	L34446-02	9/21/2016	0:00
SB-03_TP-3 (1-5)	L34446-03	9/10/2016	0:00
TP-6 (7-10)	L34446-04	8/26/2016	0:00
TP-8 (3.5-13)	L34446-05	8/24/2016	0:00
TP-9 (7-14)	L34446-06	8/24/2016	0:00
TP-12 (7-9)	L34446-07	8/25/2016	0:00
TP-14 (3-7)	L34446-08	8/25/2016	0:00
TP-20 (12-14)	L34446-09	8/25/2016	0:00

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Case Narrative

Monsanto Company

January 19, 2017

Project ID: 4512184569
ACZ Project ID: L34446

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 9 soil samples from Monsanto Company on December 6, 2016. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L34446. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-01_02GT (1.5-6.5)

ACZ Sample ID: ***L34446-01***
Date Sampled: *09/09/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	6.2			mg/Kg	0.1	0.5	01/10/17 20:20	msh
Cadmium, total (3050)	M6020 ICP-MS	510	0.65			mg/Kg	0.05	0.3	01/10/17 20:20	msh
Selenium, total (3050)	M6020 ICP-MS	510	0.18		*	mg/Kg	0.05	0.1	01/10/17 20:20	msh
Uranium, total (3050)	M6020 ICP-MS	510	0.91			mg/Kg	0.05	0.3	01/10/17 20:20	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		98.0			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		98.0			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	9.8		*	%	0.1	0.5	01/11/17 12:12	bcc
Solids, Percent	D2216-80	1	85.9		*	%	0.1	0.5	12/30/16 1:05	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 23:41	brd
Digestion - Hot Plate	M3050B ICP-MS								01/08/17 14:07	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 15:21	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 15:21	tjv

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-07GT (4-21)

ACZ Sample ID: ***L34446-02***
Date Sampled: *09/21/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	6.4			mg/Kg	0.1	0.5	01/10/17 20:22	msh
Cadmium, total (3050)	M6020 ICP-MS	505	3.57			mg/Kg	0.05	0.3	01/10/17 20:22	msh
Selenium, total (3050)	M6020 ICP-MS	505	6.58		*	mg/Kg	0.05	0.1	01/10/17 20:22	msh
Uranium, total (3050)	M6020 ICP-MS	505	3.96			mg/Kg	0.05	0.3	01/10/17 20:22	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		1.88	B		t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		40.0			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		38.1			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	4.0		*	%	0.1	0.5	01/13/17 10:48	bc
Solids, Percent	D2216-80	1	93.9		*	%	0.1	0.5	12/30/16 2:22	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.04	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1	0.06	B	*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1	0.04	B	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 2:15	brd
Digestion - Hot Plate	M3050B ICP-MS								01/08/17 18:51	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 16:26	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 16:26	tjv

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-03_TP-3 (1-5)

ACZ Sample ID: ***L34446-03***
Date Sampled: *09/10/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	520	5.5			mg/Kg	0.1	0.5	01/10/17 20:24	msh
Cadmium, total (3050)	M6020 ICP-MS	520	0.91			mg/Kg	0.05	0.3	01/10/17 20:24	msh
Selenium, total (3050)	M6020 ICP-MS	520	0.35		*	mg/Kg	0.05	0.1	01/10/17 20:24	msh
Uranium, total (3050)	M6020 ICP-MS	520	1.02			mg/Kg	0.05	0.3	01/10/17 20:24	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		161			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		161			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	16.1		*	%	0.1	0.5	01/11/17 13:18	bcc
Solids, Percent	D2216-80	1	90.0		*	%	0.1	0.5	12/30/16 3:39	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 4:50	brd
Digestion - Hot Plate	M3050B ICP-MS								01/08/17 23:35	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 17:32	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 17:32	tjv

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: TP-6 (7-10)

ACZ Sample ID: ***L34446-04***
Date Sampled: *08/26/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	19.0			mg/Kg	0.1	0.5	01/10/17 20:26	msh
Cadmium, total (3050)	M6020 ICP-MS	510	18.5			mg/Kg	0.05	0.3	01/10/17 20:26	msh
Selenium, total (3050)	M6020 ICP-MS	510	0.89		*	mg/Kg	0.05	0.1	01/10/17 20:26	msh
Uranium, total (3050)	M6020 ICP-MS	510	7.02			mg/Kg	0.05	0.3	01/10/17 20:26	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		0.63	B		t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		32.0			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		31.4			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	3.2		*	%	0.1	0.5	01/13/17 11:42	bc
Solids, Percent	D2216-80	1	81.7		*	%	0.1	0.5	12/30/16 4:55	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 7:25	brd
Digestion - Hot Plate	M3050B ICP-MS								01/09/17 4:19	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 18:37	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 18:37	tjv

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-8 (3.5-13)

ACZ Sample ID: ***L34446-05***
Date Sampled: *08/24/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	6.7			mg/Kg	0.1	0.5	01/10/17 20:28	msh
Cadmium, total (3050)	M6020 ICP-MS	505	0.53			mg/Kg	0.05	0.3	01/10/17 20:28	msh
Selenium, total (3050)	M6020 ICP-MS	505	0.43		*	mg/Kg	0.05	0.1	01/10/17 20:28	msh
Uranium, total (3050)	M6020 ICP-MS	505	0.68			mg/Kg	0.05	0.3	01/10/17 20:28	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		23.1			t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		170			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		147			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	17.0		*	%	0.1	0.5	01/11/17 13:41	bcc
Solids, Percent	D2216-80	1	96.4		*	%	0.1	0.5	12/30/16 6:12	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.54		*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1	0.01	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1	0.01	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1	0.53		*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1	0.20		*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1	0.74		*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1	0.54		*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 9:59	brd
Digestion - Hot Plate	M3050B ICP-MS								01/09/17 9:04	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 19:43	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 19:43	tjv

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: TP-9 (7-14)

ACZ Sample ID: ***L34446-06***
Date Sampled: *08/24/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	3.9			mg/Kg	0.1	0.5	01/10/17 20:30	msh
Cadmium, total (3050)	M6020 ICP-MS	505	0.51			mg/Kg	0.05	0.3	01/10/17 20:30	msh
Selenium, total (3050)	M6020 ICP-MS	505	0.45		*	mg/Kg	0.05	0.1	01/10/17 20:30	msh
Uranium, total (3050)	M6020 ICP-MS	505	0.52			mg/Kg	0.05	0.3	01/10/17 20:30	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		30.9			t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		169			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		138			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	16.9		*	%	0.1	0.5	01/11/17 14:03	bcc
Solids, Percent	D2216-80	1	98.4		*	%	0.1	0.5	12/30/16 7:29	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.91		*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1	0.89		*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1	0.08	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1	0.99		*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1	0.91		*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/27/16 11:43	brd
Digestion - Hot Plate	M3050B ICP-MS								01/09/17 13:48	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 20:48	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 20:48	tjv

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-12 (7-9)

ACZ Sample ID: ***L34446-07***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	12.0			mg/Kg	0.1	0.5	01/10/17 20:32	msh
Cadmium, total (3050)	M6020 ICP-MS	510	0.73			mg/Kg	0.05	0.3	01/10/17 20:32	msh
Selenium, total (3050)	M6020 ICP-MS	510	0.84		*	mg/Kg	0.05	0.1	01/10/17 20:32	msh
Uranium, total (3050)	M6020 ICP-MS	510	0.59			mg/Kg	0.05	0.3	01/10/17 20:32	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		0.63	B		t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		180			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		179			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	18.0		*	%	0.1	0.5	01/11/17 14:25	bcc
Solids, Percent	D2216-80	1	88.7		*	%	0.1	0.5	12/30/16 8:46	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1	0.02	B	*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/27/16 14:26	brd
Digestion - Hot Plate	M3050B ICP-MS								01/09/17 18:32	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 21:53	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 21:53	tjv

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-14 (3-7)

ACZ Sample ID: ***L34446-08***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	6.8			mg/Kg	0.1	0.5	01/10/17 20:38	msh
Cadmium, total (3050)	M6020 ICP-MS	505	0.64			mg/Kg	0.05	0.3	01/10/17 20:38	msh
Selenium, total (3050)	M6020 ICP-MS	505	0.09	B	*	mg/Kg	0.05	0.1	01/10/17 20:38	msh
Uranium, total (3050)	M6020 ICP-MS	505	0.58			mg/Kg	0.05	0.3	01/10/17 20:38	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		288			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		288			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	28.8		*	%	0.1	0.5	01/11/17 14:47	bcc
Solids, Percent	D2216-80	1	95.3		*	%	0.1	0.5	12/30/16 10:03	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/27/16 17:10	brd
Digestion - Hot Plate	M3050B ICP-MS								01/10/17 8:45	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/04/17 22:59	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/04/17 22:59	tjv

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: TP-20 (12-14)

ACZ Sample ID: ***L34446-09***
Date Sampled: *08/25/16 00:00*
Date Received: *12/06/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	7.3			mg/Kg	0.1	0.5	01/10/17 20:44	msh
Cadmium, total (3050)	M6020 ICP-MS	505	1.41			mg/Kg	0.05	0.3	01/10/17 20:44	msh
Selenium, total (3050)	M6020 ICP-MS	505	0.58		*	mg/Kg	0.05	0.1	01/10/17 20:44	msh
Uranium, total (3050)	M6020 ICP-MS	505	1.27			mg/Kg	0.05	0.3	01/10/17 20:44	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		4.38			t CaCO3/Kt	0.31	3.1	01/19/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		221			t CaCO3/Kt	1	5	01/19/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		217			t CaCO3/Kt			01/19/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	22.1		*	%	0.1	0.5	01/11/17 15:31	bcc
Solids, Percent	D2216-80	1	89.4		*	%	0.1	0.5	12/30/16 11:20	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.09	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1	0.09	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1	0.05	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1	0.14		*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1	0.09	B	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/27/16 19:53	brd
Digestion - Hot Plate	M3050B ICP-MS								01/10/17 13:29	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 0:04	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 0:04	tjv

** Please refer to Qualifier Reports for details.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Monsanto Company

ACZ Project ID: ***L34446***

Arsenic, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.05		.04876	mg/L	98	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0006	0.0006			
WG415985ICSA	ICSA	01/10/17 19:56				U	mg/L		-0.001	0.001			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	.02004		.02141	mg/L	107	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.3	0.3			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	145		137.1	mg/Kg		115	176			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	145		143.7	mg/Kg		115	176	5	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.1002		.10333	mg/L	103	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0006	0.0006			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	25.551	12	40.12	mg/Kg	110	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	25.551	12	41.91	mg/Kg	117	75	125	4	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.1002		.10098	mg/L	101	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0006	0.0006			
L34446-09SDL	SDL	01/10/17 20:46			7.3	7.1	mg/Kg				3	10	
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.1002		.10462	mg/L	104	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0006	0.0006			

Cadmium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.05		.05049	mg/L	101	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0003	0.0003			
WG415985ICSA	ICSA	01/10/17 19:56				U	mg/L		-0.0005	0.0005			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	.02002		.01946	mg/L	97	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.15	0.15			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	87.6		85.89	mg/Kg		72.4	103			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	87.6		85.63	mg/Kg		72.4	103	0	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.1001		.0982	mg/L	98	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0003	0.0003			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	25.5255	.73	26.658	mg/Kg	102	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	25.5255	.73	27.617	mg/Kg	105	75	125	4	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.1001		.09784	mg/L	98	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0003	0.0003			
L34446-09SDL	SDL	01/10/17 20:46			1.41	1.36	mg/Kg				4	10	
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.1001		.10011	mg/L	100	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0003	0.0003			

Monsanto Company

ACZ Project ID: ***L34446***

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416048													
WG416048PBS	PBS	01/11/17 11:28				U	%		-0.2	0.2			
WG416048LCSS	LCSS	01/11/17 11:50	PCN49919	7.21		8.13	%	113	80	120			
L34446-01MS	MS	01/11/17 12:34	SI141024-2	3	9.8	12.63	%	94	70	130			
L34446-01DUP	DUP	01/11/17 12:56			9.8	9.88	%				1	20	
WG416091													
WG416091PBS	PBS	01/13/17 10:12				U	%		-0.2	0.2			
WG416091LCSS	LCSS	01/13/17 10:30	PCN49912	4.96		5.7	%	115	80	120			
L34446-02MS	MS	01/13/17 11:06	SI141024-1	1	4	4.75	%	75	70	130			
L34446-02DUP	DUP	01/13/17 11:24			4	3.93	%				2	20	

Selenium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.05		.05402	mg/L	108	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0003	0.0003			
WG415985ICSA	ICSA	01/10/17 19:56				U	mg/L		-0.0003	0.0003			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	.02002		.02144	mg/L	107	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.15	0.15			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	178		175.83	mg/Kg		140	216			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	178		180.83	mg/Kg		140	216	3	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.25025		.25409	mg/L	102	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0003	0.0003			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	12.76275	.84	14.225	mg/Kg	105	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	12.76275	.84	13.832	mg/Kg	102	75	125	3	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.25025		.24628	mg/L	98	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0003	0.0003			
L34446-09SDL	SDL	01/10/17 20:46			.58	.485	mg/Kg				16	10	ZG
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.25025		.25271	mg/L	101	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0003	0.0003			

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415419													
WG415419PBS	PBS	12/29/16 11:00				U	%		-0.1	0.1			
L34305-01DUP	DUP	12/29/16 13:33			87.4	87.22	%				0	20	

Sulfur Organic Residual M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA

Sulfur Pyritic Sulfide M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA

Monsanto Company

ACZ Project ID: ***L34446***

Sulfur Sulfate M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA

Sulfur Total M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
WG416138PBS	PBS	01/12/17 16:35				U	%		-0.03	0.03			
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA
L34446-01MS	MS	01/12/17 16:35	PCN49456	1.33	U	1.16	%	87	80	120			
WG416138LCSS	LCSS	01/12/17 16:35	PCN51462	3.82		3.67	%	96	80	120			

Total Sulfur Minus Sulfate M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA

Uranium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415985													
WG415985ICV	ICV	01/10/17 19:52	MS161128-3	.05		.05266	mg/L	105	90	110			
WG415985ICB	ICB	01/10/17 19:54				U	mg/L		-0.0003	0.0003			
WG415985ICSA	ICSA	01/10/17 19:56				U	mg/L		-0.0005	0.0005			
WG415985ICSAB	ICSAB	01/10/17 19:58	MS161201-10	.02		.02211	mg/L	111	80	120			
WG415785PBS	PBS	01/10/17 20:02				U	mg/Kg		-0.15	0.15			
WG415785LCSS1	LCSS	01/10/17 20:04	PCN52516	17.6		17.95	mg/Kg		14.2	20.9			
WG415785LCSSD1	LCSSD	01/10/17 20:06	PCN52516	17.6		17.55	mg/Kg		14.2	20.9	2	20	
WG415985CCV1	CCV	01/10/17 20:16	MS161201-14	.1		.10188	mg/L	102	90	110			
WG415985CCB1	CCB	01/10/17 20:18				U	mg/L		-0.0003	0.0003			
L34446-07MS	MS	01/10/17 20:34	MS161205-2	12.75	.59	15.231	mg/Kg	115	75	125			
L34446-07MSD	MSD	01/10/17 20:36	MS161205-2	12.75	.59	15.762	mg/Kg	119	75	125	3	20	
WG415985CCV2	CCV	01/10/17 20:40	MS161201-14	.1		.10192	mg/L	102	90	110			
WG415985CCB2	CCB	01/10/17 20:42				U	mg/L		-0.0003	0.0003			
L34446-09SDL	SDL	01/10/17 20:46			1.27	1.22	mg/Kg				4	10	
WG415985CCV3	CCV	01/10/17 20:48	MS161201-14	.1		.10295	mg/L	103	90	110			
WG415985CCB3	CCB	01/10/17 20:50				U	mg/L		-0.0003	0.0003			

Monsanto Company ACZ Project ID: ***L34446***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34446-01	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L34446-02	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L34446-03	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L34446***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34446-04	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L34446-05	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L34446-06	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L34446***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34446-07	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L34446-08	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L34446-09	WG415985	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
Solids, Percent	D2216-80
Sulfur HCl Residue	M600/2-78-054 3.2.4-MOD
Sulfur HNO3 Residue	M600/2-78-054 3.2.4-MOD
Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD
Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD
Sulfur Sulfate	M600/2-78-054 3.2.4-MOD
Sulfur Total	M600/2-78-054 3.2.4-MOD
Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG415985

ACZ Laboratories, Inc

Instrument ID: ICPMS6
Analyst: MSL
ACZ Dept: 33
Create Date: 01/10/2017 17:28
Start Date/Time: 1-10-17
End Date/Time: 1-11-17

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 30 50	CD MS 30 50	MO MS 30 50	SE MS 30 50	U MS 30 50	Dilution
1	WG415985ICV	MS161128-3			1			✓	✓	✓	✓	✓	1
2	WG415985ICB	NONE			1			✓	✓	✓	✓	✓	1
3	WG415985ICSA	MS161201-9			1			✓	✓	✓	✓	✓	1
4	WG415985ICSAB	MS161201-10			1			✓	✓	✓	✓	✓	1
5	WG415985WASH	NONE			1			✓	✓	✓	✓	✓	1
6	WG415785PBS	NONE			100			✓	✓	✓	✓	✓	500
7	WG415785LCSS1	PCN52516			100			✓	✓	✓	✓	✓	5000
8	WG415785LCSSD1	PCN52516			100			✓	✓	✓	✓	✓	5000
9	L34445-01	TP-6_7_9 (2-5)			101			✓	✓	✓	✓	✓	505
10	L34445-02	TP-12 (2-4)			101			✓	✓	✓	✓	✓	505
11	L34445-03	TP-15_16 (2-13)			101			✓	✓	✓	✓	✓	505
12	L34445-04	TP-20 (1-4)			102			✓	✓	✓	✓	✓	510
13	WG415985CCV1	MS161201-14			1			✓	✓	✓	✓	✓	1
14	WG415985CCB1	NONE			1			✓	✓	✓	✓	✓	1
15	L34446-01	SB-01_02GT (1.5-6.5)			102			✓	✓		✓	✓	510
16	L34446-02	SB-07GT (4-21)			101			✓	✓		✓	✓	505
17	L34446-03	SB-03_TP-3 (1-5)			104			✓	✓		✓	✓	520
18	L34446-04	TP-6 (7-10)			102			✓	✓		✓	✓	510
19	L34446-05	TP-8 (3.5-13)			101			✓	✓		✓	✓	505
20	L34446-06	TP-9 (7-14)			101			✓	✓		✓	✓	505
21	L34446-07	TP-12 (7-9)			102			✓	✓		✓	✓	510
22	L34446-07MS	MS161205-2			102			✓	✓	✓	✓	✓	510

Report Comments: As/Se → 115

Internal Comments

AREV: MSL 1-11-17
Initials, Date

SREV: 1-18-17
Initials, Date

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG415985

ACZ Laboratories, Inc

Instrument ID: ICPMS6
Analyst:
ACZ Dept: 33
Create Date: 01/10/2017 17:28
Start Date/Time:
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 30 50	CD MS 30 50	MO MS 30 50	SE MS 30 50	U MS 30 50	Dilution
23	L34446-07MSD	MS161205-2			102			✓	✓	✓	✓	✓	510
24	L34446-08	TP-14 (3-7)			101			✓	✓		✓	✓	505
25	WG415985CCV2	MS161201-14			1			✓	✓	✓	✓	✓	1
26	WG415985CCB2	NONE			1			✓	✓	✓	✓	✓	1
27	L34446-09	TP-20 (12-14)			101			✓	✓		✓	✓	505
28	L34446-09SDL	NONE			1			✓	✓	✓	✓	✓	505
29	WG415985CCV3	MS161201-14			1			✓	✓	✓	✓	✓	1
30	WG415985CCB3	NONE			1			✓	✓	✓	✓	✓	1

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-07MS	ICPMS Spike
L34446-07MSD	ICPMS Spike
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L34446-1701191414

ACZ Laboratories, Inc.
ICPMS DATA REVIEW CHECKLIST

AREV: MM
Date: 1-11-17
SREV: [illegible]
Date: 1-12-17

Workgroup: WG415985
Sample Type: 3050
Analysis Date: 1-10-to 17
Analyst: MGM 1-11-17

	Yes	No	N/A
1) Is the instrument ID on the bench sheet correct?	✓		
2) Has a passing method tune been performed within 24 hours?	✓		
3) Was the low calibration point dropped? If yes, notify PM of change to PQLs.		✓	
4) Is the linear regression ≥ 0.995 for the analytes of interest?	✓		
5) Was the PQV standard analyzed & evaluated for DW samples ? (Fail in LIMS if no DW sxs in WG.)	✓		
6) Do the dilution factors on the benchsheet match the sequence in the raw data?	✓		
7) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?	✓		
8) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?	✓		
9) Are the % Recoveries of the internal standards within the method limits?	✓		
10) Are all of the QC critera listed in LIMS within specified limits?		✓	
11) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
12) Are all errors properly crossed out (i.e. single-line, dated & initialed)?	✓		
13) Is a current standard/reagent form attached to the workgroup?	✓		
14) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
695D1	Se = 16	ZG

ACZ Labs, Inc.
Standards/Reagents Information
ICPMS, Methods 6020 and 200.8

Calibration Standards

6020/200.8 Stock #1: MS161201-11 SCN
6020/200.8 Stock #2: MS161201-12 SCN
6020/200.8 Stock #3: MS161201-13 SCN

PQV STD: MS161201-7 SCN
Exp. 3/1/2017

INT STD: MS160923-1 SCN
Exp. 8/25/2017

Nitric Acid: 52053 PCN

Hydrochloric Acid: 51241 PCN

VERIFIED: MSH 1-11-17

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415985

Date Reported: 12-Jan-17
Run ID: R1491400
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: ICPMS6

WG415985ICV

Tag: **Measured:** 1/10/2017 7:52:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.04876	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	98	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.05049	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	101	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.01938	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	97	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.05402	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	108	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.05266	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	105	1		%	++	0.0001	0.0005			

WG415985ICB

Tag: **Measured:** 1/10/2017 7:54:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG415985ICSA

Tag: **Measured:** 1/10/2017 7:56:19 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG415985ICSAB

Tag: **Measured:** 1/10/2017 7:58:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.02141	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	107	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.01946	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	97	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	1.00956	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	98	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.02144	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	107	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.02211	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	111	1		%	++	0.0001	0.0005			

WG415785PBS

Tag: Measured: 1/10/2017 8:02:19 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		500	U	mg/Kg	++	0.1	0.5			
SREV	CADMIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND		500	U	mg/Kg	++	0.3	1			
SREV	SELENIUM	FOUND		500	U	mg/Kg	++	0.05	0.1			
SREV	URANIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			

WG415785LCSS1

Tag: Measured: 1/10/2017 8:04:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	137.1	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	95	5000		%	++	1	5			
SREV	CADMIUM	FOUND	85.89	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	98	5000		%	++	0.5	3			
SREV	MOLYBDENUM	FOUND	116.2	5000		mg/Kg	++	3	10			
SREV	MOLYBDENUM	REC	100	5000		%	++	3	10			
SREV	SELENIUM	FOUND	175.83	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	99	5000		%	++	0.5	1			
SREV	URANIUM	FOUND	17.95	5000		mg/Kg	++	0.5	3			
SREV	URANIUM	REC	102	5000		%	++	0.5	3			

WG415785LCSSD

Tag: Measured: 1/10/2017 8:06:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	143.7	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	99	5000		%	++	1	5			
SREV	ARSENIC	RPD	5	5000		%	++	1	5			
SREV	CADMIUM	FOUND	85.63	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	98	5000		%	++	0.5	3			
SREV	CADMIUM	RPD	0	5000		%	++	0.5	3			
SREV	MOLYBDENUM	FOUND	116.3	5000		mg/Kg	++	3	10			
SREV	MOLYBDENUM	REC	100	5000		%	++	3	10			
SREV	MOLYBDENUM	RPD	0	5000		%	++	3	10			
SREV	SELENIUM	FOUND	180.83	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	102	5000		%	++	0.5	1			
SREV	SELENIUM	RPD	3	5000		%	++	0.5	1			
SREV	URANIUM	FOUND	17.55	5000		mg/Kg	++	0.5	3			
SREV	URANIUM	REC	100	5000		%	++	0.5	3			
SREV	URANIUM	RPD	2	5000		%	++	0.5	3			

L34445-01

Tag: Measured: 1/10/2017 8:08:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	8.6	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	14.8	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	4.0	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	2.14	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	11.2	505		mg/Kg	++	0.05	0.3			

L34445-02

Tag: Measured: 1/10/2017 8:10:10 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.8	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.86	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	.4	505	B	mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	.24	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.68	505		mg/Kg	++	0.05	0.3			

L34445-03

Tag: Measured: 1/10/2017 8:12:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	7.1	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	4.22	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	2.5	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	3.44	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	5.87	505		mg/Kg	++	0.05	0.3			

L34445-04

Tag: Measured: 1/10/2017 8:14:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	8.9	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	12.3	510		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	6.2	510		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	4.22	510		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	11.7	510		mg/Kg	++	0.05	0.3			

WG415985CCV1

Tag: Measured: 1/10/2017 8:16:17 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10333	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	103	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.0982	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	98	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.10127	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	101	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.25409	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	102	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10188	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	102	1		%	++	0.0001	0.0005			

WG415985CCB1

Tag: Measured: 1/10/2017 8:18:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

L34446-01

Tag: Measured: 1/10/2017 8:20:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.2	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.65	510		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.18	510		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.91	510		mg/Kg	++	0.05	0.3			

L34446-02

Tag: Measured: 1/10/2017 8:22:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.4	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	3.57	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	6.58	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	3.96	505		mg/Kg	++	0.05	0.3			

L34446-03

Tag: Measured: 1/10/2017 8:24:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	5.5	520		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.91	520		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.35	520		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	1.02	520		mg/Kg	++	0.05	0.3			

L34446-04

Tag: Measured: 1/10/2017 8:26:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	19.0	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	18.5	510		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.89	510		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	7.02	510		mg/Kg	++	0.05	0.3			

L34446-05

Tag: Measured: 1/10/2017 8:28:17 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.7	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.53	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.43	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.68	505		mg/Kg	++	0.05	0.3			

L34446-06

Tag: Measured: 1/10/2017 8:30:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	3.9	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.51	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.45	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.52	505		mg/Kg	++	0.05	0.3			

L34446-07

Tag: Measured: 1/10/2017 8:32:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	12.0	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.73	510		mg/Kg	++	0.05	0.3			
NEED	MOLYBDENUM	REG	1.1	510		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	.84	510		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.59	510		mg/Kg	++	0.05	0.3			

L34446-07MS

Tag:

Measured: 1/10/2017 8:34:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	40.12	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	110	510		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	26.658	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	102	510		%	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND	24.5	510		mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REC	92	510		%	++	0.3	1			
SREV	SELENIUM	FOUND	14.225	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	105	510		%	++	0.05	0.1			
SREV	URANIUM	FOUND	15.231	510		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REC	115	510		%	++	0.05	0.3			

L34446-07MSD

Tag:

Measured: 1/10/2017 8:36:29 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	41.91	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	117	510		%	++	0.1	0.5			
SREV	ARSENIC	RPD	4	510		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	27.617	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	105	510		%	++	0.05	0.3			
SREV	CADMIUM	RPD	4	510		%	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND	25.69	510		mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REC	97	510		%	++	0.3	1			
SREV	MOLYBDENUM	RPD	5	510		%	++	0.3	1			
SREV	SELENIUM	FOUND	13.832	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	102	510		%	++	0.05	0.1			
SREV	SELENIUM	RPD	3	510		%	++	0.05	0.1			
SREV	URANIUM	FOUND	15.762	510		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REC	119	510		%	++	0.05	0.3			
SREV	URANIUM	RPD	3	510		%	++	0.05	0.3			

L34446-08

Tag:

Measured: 1/10/2017 8:38:31 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.8	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.64	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.09	505	B	mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	.58	505		mg/Kg	++	0.05	0.3			

WG415985CCV2

Tag:

Measured: 1/10/2017 8:40:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10098	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.09784	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	98	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.1	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	100	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.24628	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	98	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10192	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	102	1		%	++	0.0001	0.0005			

WG415985CCB2

Tag: Measured: 1/10/2017 8:42:29 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

L34446-09

Tag: Measured: 1/10/2017 8:44:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	7.3	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	1.41	505		mg/Kg	++	0.05	0.3			
NEED	MOLYBDENUM	REG	.9	505	B	mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	.58	505		mg/Kg	++	0.05	0.1		ZG	
SREV	URANIUM	U-MS-3050	1.27	505		mg/Kg	++	0.05	0.3			

L34446-09SDL

Tag: Measured: 1/10/2017 8:46:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	D	3	505		%	++	0.1	0.5			
SREV	ARSENIC	FOUND	1.42	505		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REG	7.1	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	D	4	505		%	++	0.05	0.3			
SREV	CADMIUM	FOUND	0.272	505	B	mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REG	1.36	505	B	mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	D		505	U	%	++	0.3	1			
SREV	MOLYBDENUM	FOUND		505	U	mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REG	0	505	U	mg/Kg	++	0.3	1			
SREV	SELENIUM	D	16	505	B	%	ALRT	0.05	0.1		ZG	
SREV	SELENIUM	FOUND	0.097	505	B	mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REG	0.485	505	B	mg/Kg	++	0.05	0.1			
SREV	URANIUM	D	4	505		%	++	0.05	0.3			
SREV	URANIUM	FOUND	0.244	505	B	mg/Kg	++	0.05	0.3			
SREV	URANIUM	REG	1.22	505	B	mg/Kg	++	0.05	0.3			

WG415985CCV3

Tag: Measured: 1/10/2017 8:48:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10462	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	104	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.10011	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	100	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.10096	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	101	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.25271	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	101	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10295	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	103	1		%	++	0.0001	0.0005			

WG415985CCB3

Tag:

Measured: 1/10/2017 8:50:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

US EPA 6020 Tune Check Sample Report

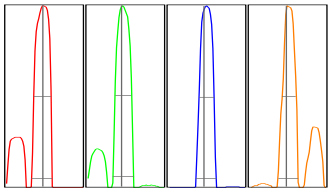
Batch Folder C:\Agilent\ICPMH\1\DATA\6020AMU-10_Jan_2017-10_39_41.b
Report Comment
Instrument Name G8403A JP16281462

[NoGas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	2551	0.90	5.00	
59	8721	0.50	5.00	
115	14628	0.30	5.00	
205	5584	0.60	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count
7	2528	2574	2550
59	8687	8707	8770
115	14676	14588	14621
205	5556	5576	5621

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	4074	7.00	6.9 - 7.1		0.782	0.900	
59	14529	58.90	58.9 - 59.1		0.783	0.900	
115	26490	114.95	114.9 - 115.1		0.771	0.900	
205	10691	205.00	204.9 - 205.1		0.771	0.900	

X% = 5 **Integration Time [sec] =** 0.1 **Acquisition Time [sec] =** 90.06 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

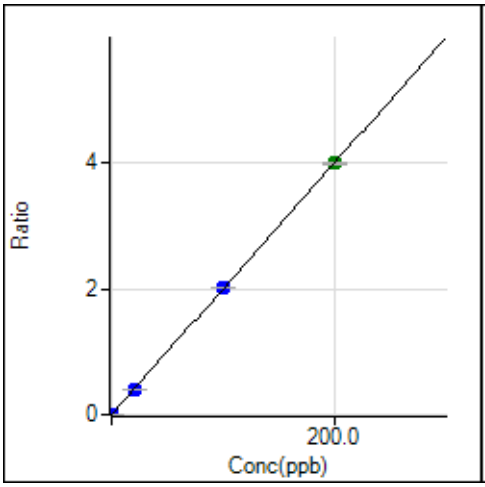
ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Carrier Gas	0.78	L/min	S/C Temp	2	°C
RF Matching	1.60	V	Option Gas	0.0	%	Gas Switch	Makeup Gas	
Smpl Depth	10.0	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas	0.22	L/min

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Omega Lens	9.4	V	Deflect	11.6	V
Extract 2	-140.0	V	Cell Entrance	-30	V	Plate Bias	-35	V
Omega Bias	-70	V	Cell Exit	-50	V			

Cell Parameters

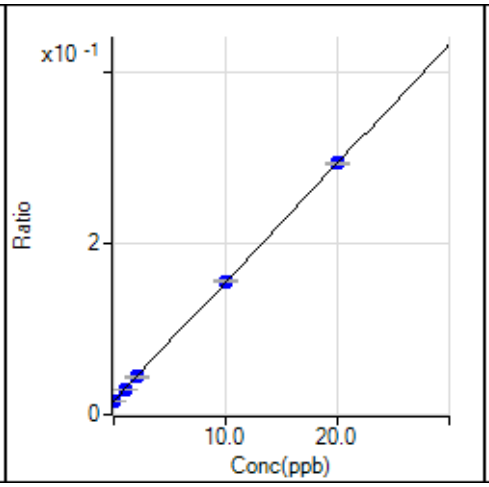
ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	No		H2 Flow	0.0	mL/min	OctP RF	200	V
He Flow	0.0	mL/min	OctP Bias	-8.0	V	Energy Discrimination	5.0	V



9 Be [NoGas] / ISTD: 6 Li

y = 2.003E-2 x + 3.941E-4

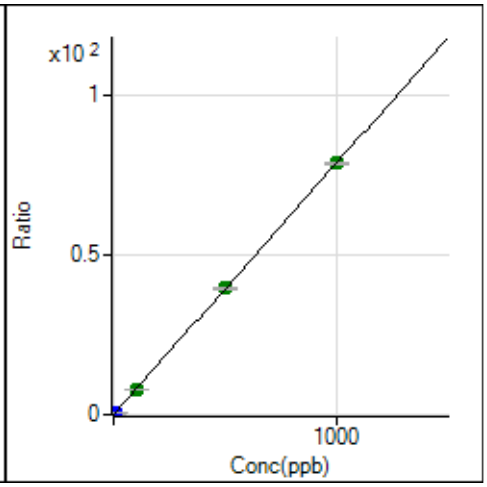
R	1.0000
DL	0.01
BEC	0.01968



11 B [NoGas] / ISTD: 6 Li

y = 1.392E-2 x + 1.620E-2

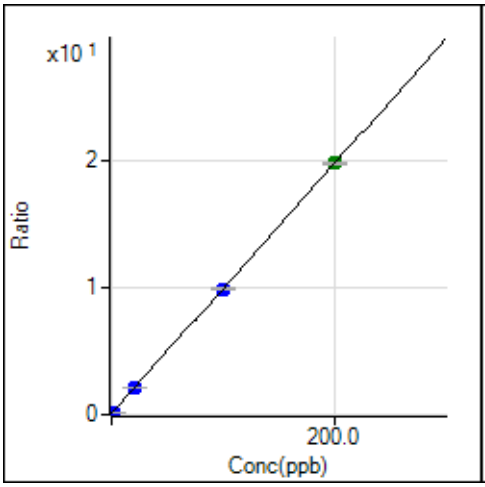
R	1.0000
DL	0.2041
BEC	1.164



27 Al [NoGas] / ISTD: 72 Ge

y = 7.888E-2 x + 4.744E-2

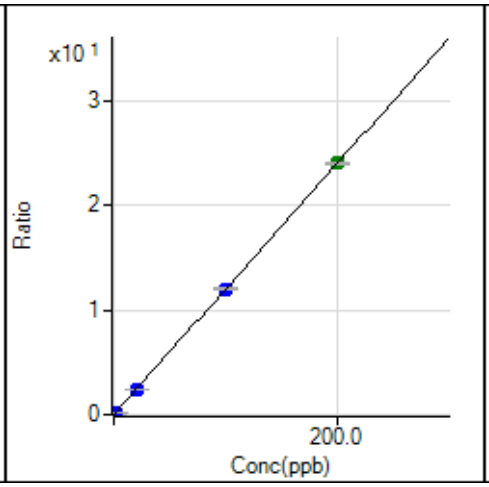
R	1.0000
DL	0.03002
BEC	0.6013



51 V [He] / ISTD: 45 Sc

y = 9.855E-2 x + 9.399E-2

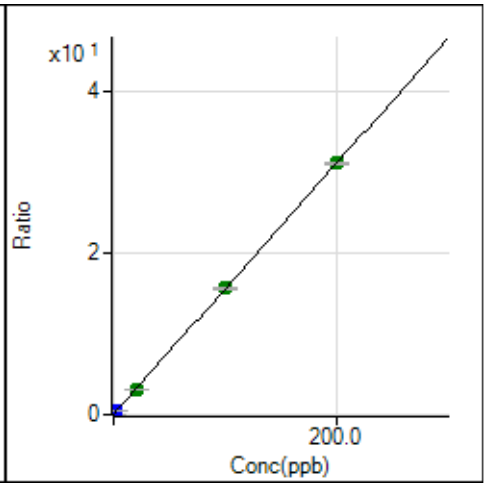
R	1.0000
DL	0.02268
BEC	0.9537



52 Cr [He] / ISTD: 45 Sc

y = 1.200E-1 x + 4.010E-3

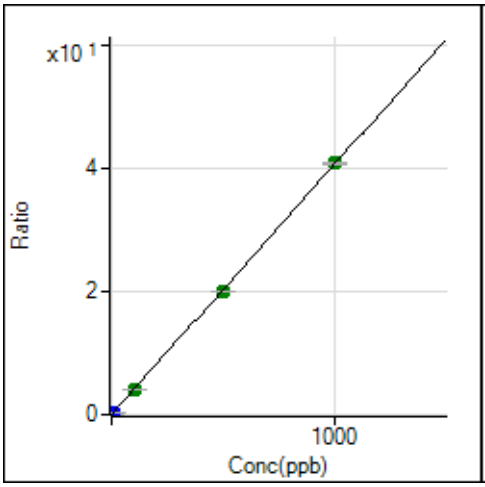
R	1.0000
DL	0.0129
BEC	0.03342



55 Mn [NoGas] / ISTD: 72 Ge

y = 1.552E-1 x + 6.132E-2

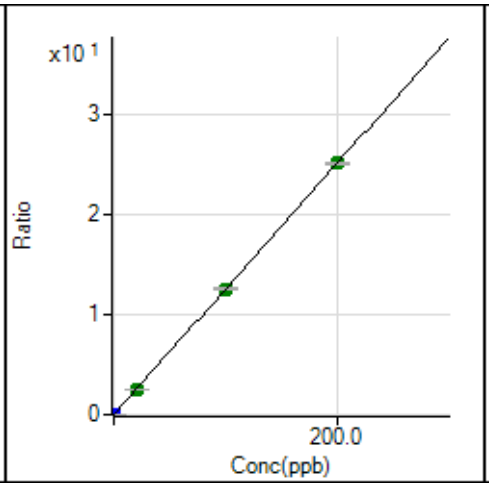
R	1.0000
DL	0.01714
BEC	0.395



56 Fe [H2] / ISTD: 45 Sc

y = 4.073E-2 x + 3.341E-2

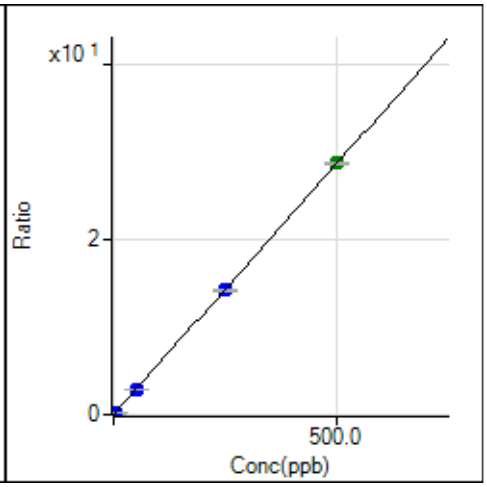
R	1.0000
DL	0.02667
BEC	0.8202



59 Co [NoGas] / ISTD: 72 Ge

y = 1.260E-1 x + 1.585E-3

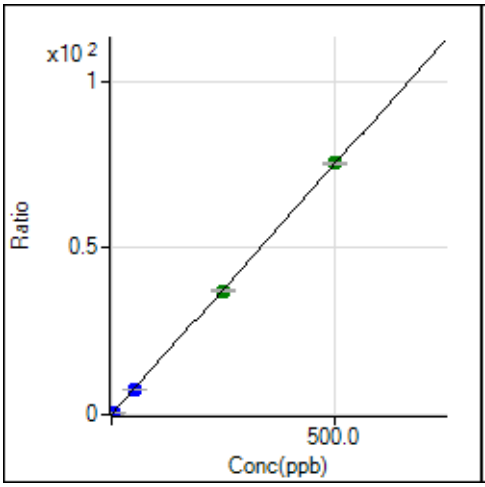
R	1.0000
DL	0.001461
BEC	0.01258



60 Ni [He] / ISTD: 45 Sc

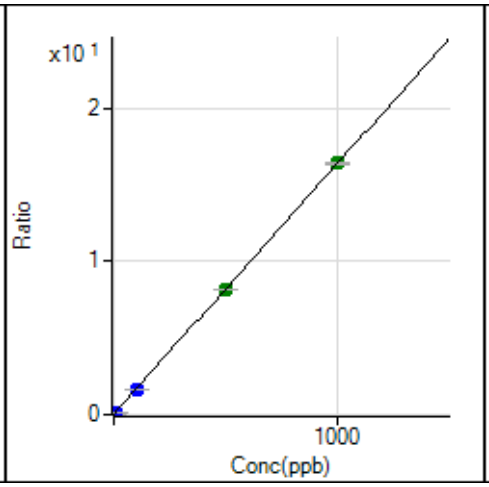
y = 5.735E-2 x + 3.712E-3

R	1.0000
DL	0.02073
BEC	0.06473



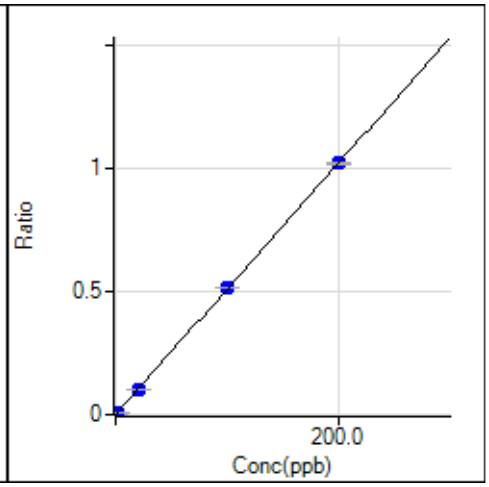
63 Cu [He] / ISTD: 45 Sc
y = 1.503E-1 x + 9.747E-2

R	1.0000
DL	0.0261
BEC	0.6485



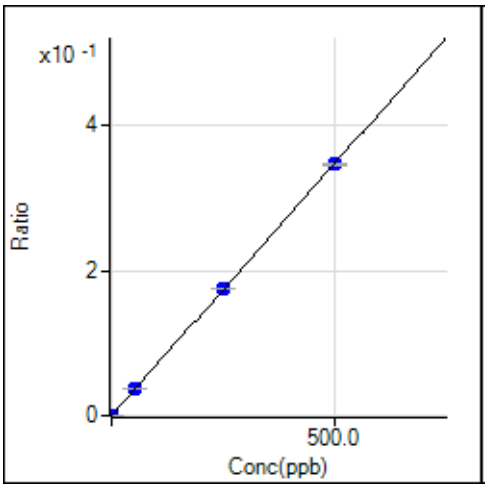
66 Zn [NoGas] / ISTD: 72 Ge
y = 1.636E-2 x + 4.099E-2

R	1.0000
DL	0.1029
BEC	2.506



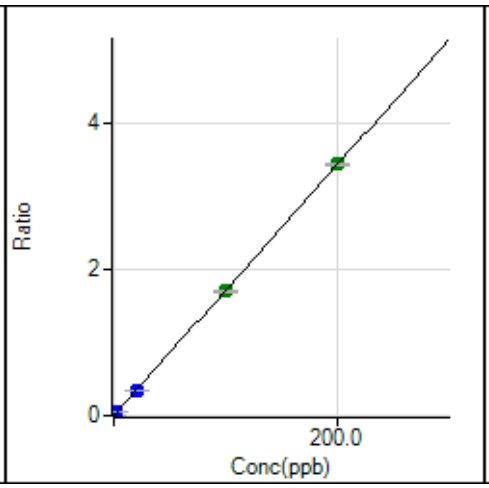
75 As [He] / ISTD: 115 In
y = 5.102E-3 x + 2.562E-4

R	1.0000
DL	0.06558
BEC	0.05022



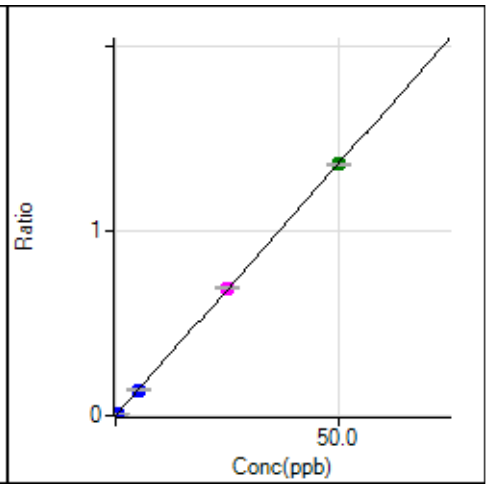
78 Se [H2] / ISTD: 115 In
y = 6.954E-4 x + 5.767E-5

R	1.0000
DL	0.02508
BEC	0.08293



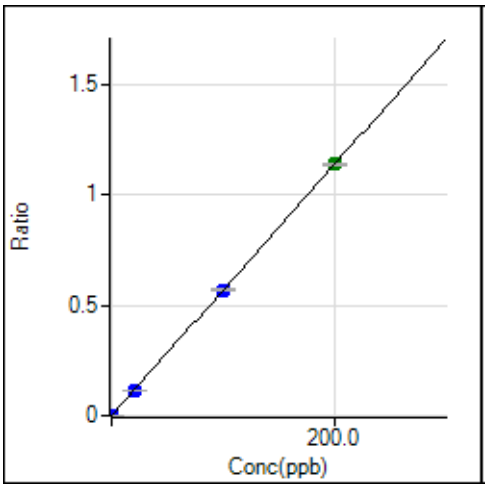
98 Mo [NoGas] / ISTD: 115 In
y = 1.711E-2 x + 2.275E-4

R	1.0000
DL	0.005493
BEC	0.0133



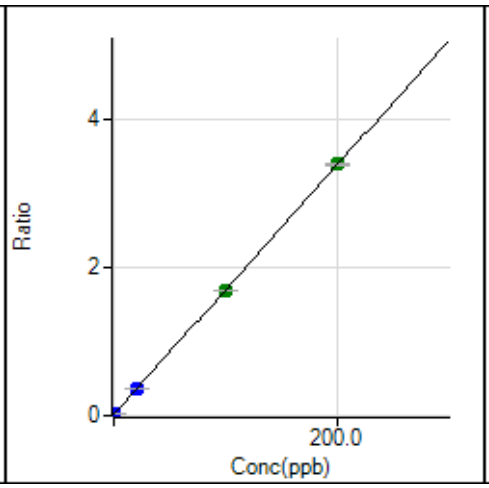
107 Ag [NoGas] / ISTD: 115 In
y = 2.726E-2 x + 2.054E-4

R	1.0000
DL	0.004222
BEC	0.007534



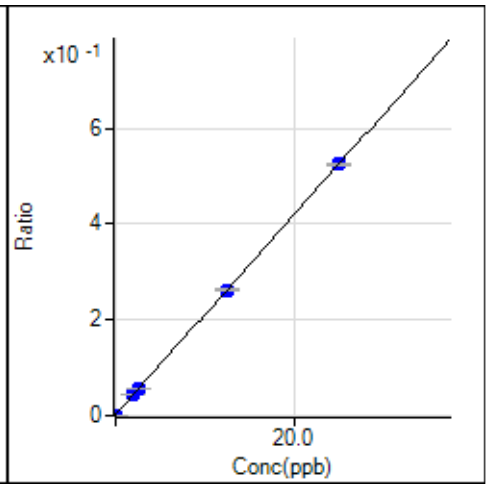
111 Cd [NoGas] / ISTD: 115 In
y = 5.690E-3 x + 4.507E-5

R	1.0000
DL	0.003322
BEC	0.00792



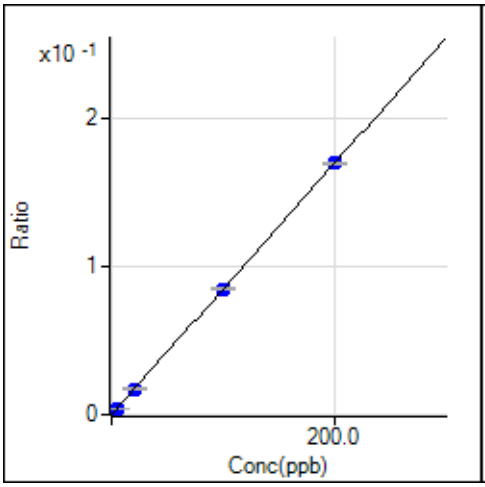
118 Sn [NoGas] / ISTD: 115 In
y = 1.692E-2 x + 1.357E-2

R	1.0000
DL	0.03267
BEC	0.8023



121 Sb [NoGas] / ISTD: 115 In
y = 2.090E-2 x + 1.962E-3

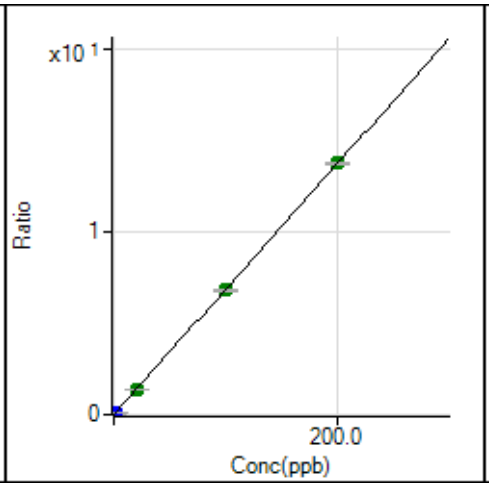
R	1.0000
DL	0.008876
BEC	0.09391



125 Te [NoGas] / ISTD: 115 In

y = 8.476E-4 x + 2.386E-5

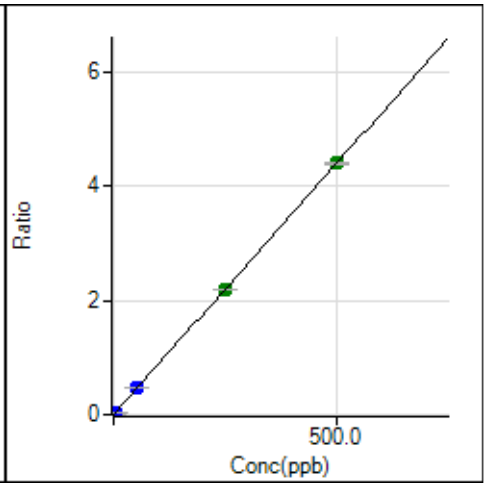
R	1.0000
DL	0.01636
BEC	0.02815



133 Cs [NoGas] / ISTD: 115 In

y = 6.849E-2 x + 5.197E-4

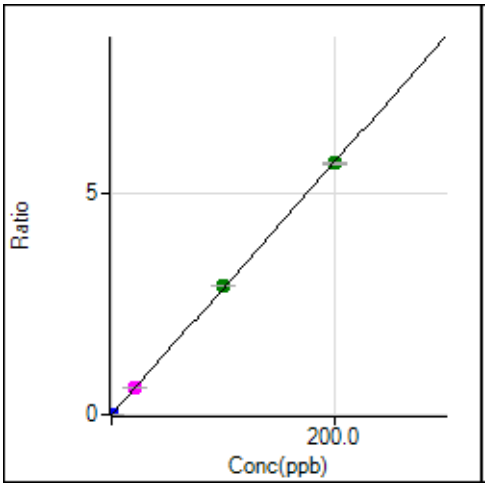
R	1.0000
DL	0.0004157
BEC	0.007589



137 Ba [NoGas] / ISTD: 115 In

y = 8.807E-3 x + 3.640E-4

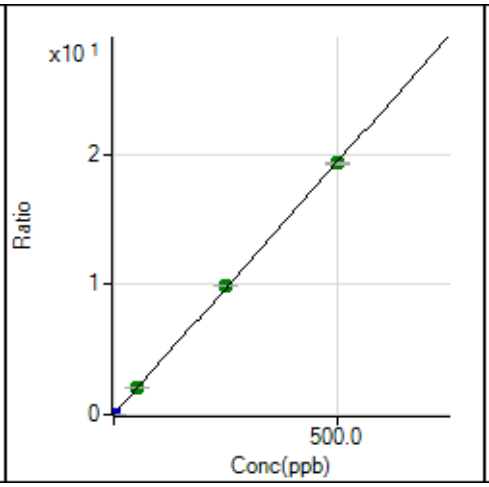
R	1.0000
DL	0.01017
BEC	0.04133



205 Tl [NoGas] / ISTD: 209 Bi

y = 2.847E-2 x + 2.295E-4

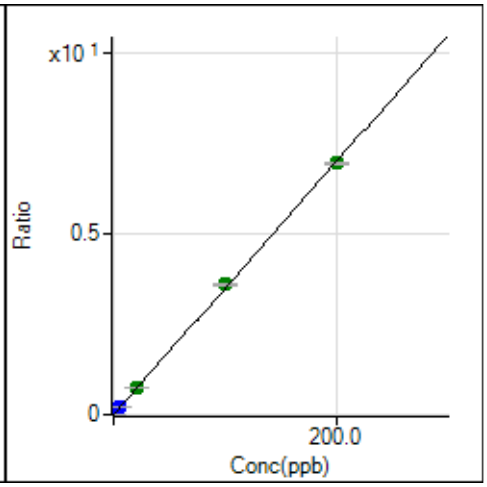
R	0.9999
DL	0.001667
BEC	0.008058



208 Pb [NoGas] / ISTD: 209 Bi

y = 3.890E-2 x + 8.422E-4

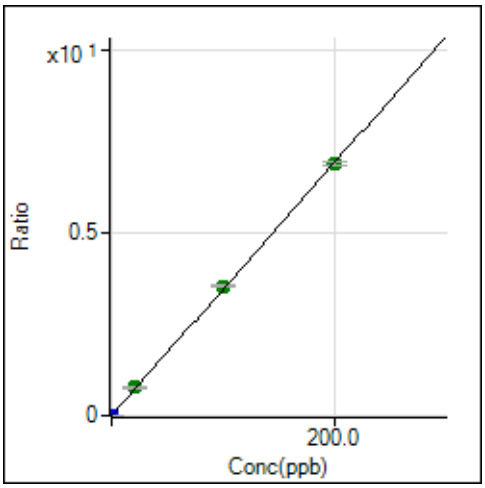
R	0.9999
DL	0.001726
BEC	0.02165



232 Th [NoGas] / ISTD: 209 Bi

y = 3.495E-2 x + 2.149E-4

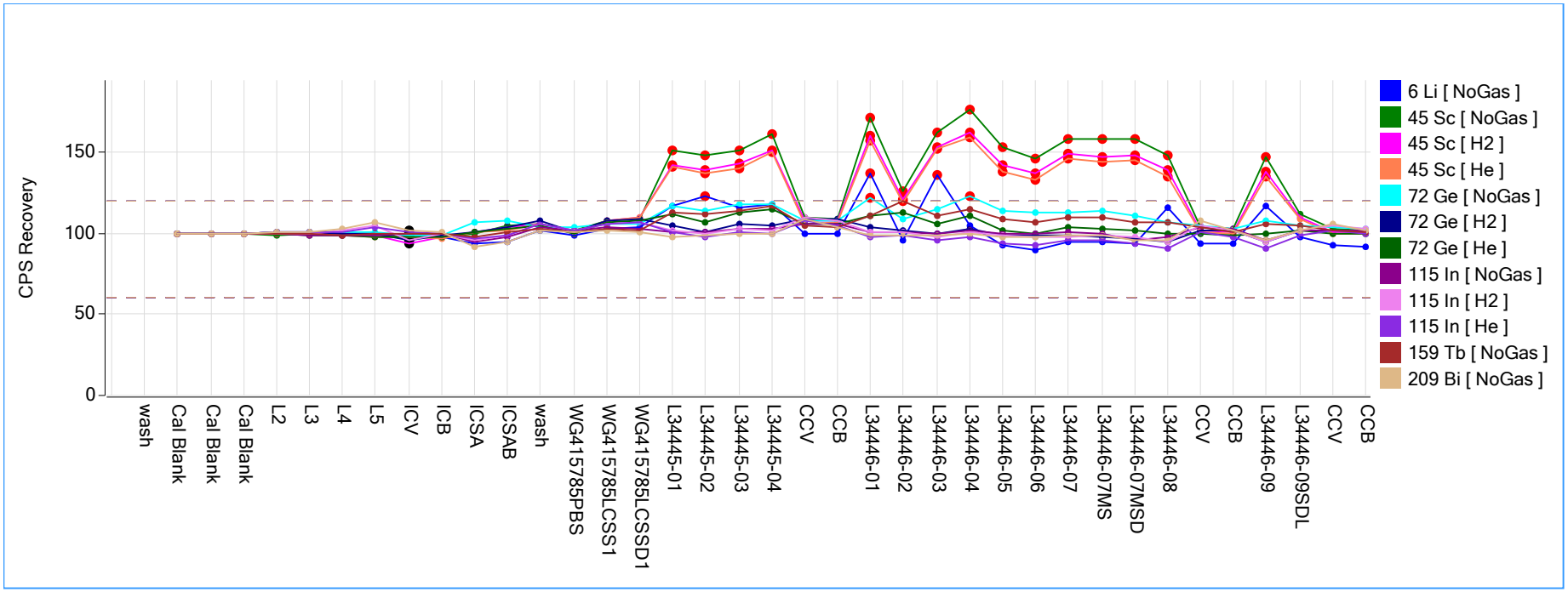
R	0.9998
DL	0.0006027
BEC	0.006149



238 U [NoGas] / ISTD: 209 Bi

y = 3.466E-2 x + 1.756E-4

R	0.9999
DL	0.000636
BEC	0.005067


CPS Recovery
150
100
50
0
wash
Cal Blank
Cal Blank
Cal Blank
L2
L3
L4
L5
ICV
ICB
ICSA
ICSAB
wash
WG415785PBS
WG415785LCSS1
WG415785LCSSD1
L34445-01
L34445-02
L34445-03
L34445-04
CCV
CCB
L34446-01
L34446-02
L34446-03
L34446-04
L34446-05
L34446-06
L34446-07
L34446-07MS
L34446-07MSD
L34446-08
CCV
CCB
L34446-09
L34446-09SDL
CCV
CCB
6 Li [NoGas]
45 Sc [NoGas]
45 Sc [H2]
45 Sc [He]
72 Ge [NoGas]
72 Ge [H2]
72 Ge [He]
115 In [NoGas]
115 In [H2]
115 In [He]
159 Tb [NoGas]
209 Bi [NoGas]

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:34:15 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:36:10 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:38:05 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	200	18.6
11	B	6	NoGas	7968.84	1.3
27	Al	72	NoGas	14501.66	0.9
51	V	45	He	6869.44	0.6
52	Cr	45	He	311.11	23.1
55	Mn	72	NoGas	40784.35	0.5
56	Fe	45	H2	10548.35	3.5
59	Co	72	NoGas	728.91	7.0
60	Ni	45	He	153.34	2.2
63	Cu	45	He	2754.72	2.2
66	Zn	72	NoGas	6296.98	4.8
75	As	115	He	-33.64	-162.1
78	Se	115	H2	80.33	8.7
98	Mo	115	NoGas	320.76	8.9
107	Ag	115	NoGas	353.34	7.5
111	Cd	115	NoGas	41.21	30.7
118	Sn	115	NoGas	11440.38	3.1
121	Sb	115	NoGas	4792.6	6.8
125	Te	115	NoGas	47.78	32.2
133	Cs	115	NoGas	753.35	5.9
137	Ba	115	NoGas	288.89	13.0
205	Tl	209	NoGas	313.34	7.4
208	Pb	209	NoGas	1441.15	3.5
232	Th	209	NoGas	327.78	2.3
238	U	209	NoGas	124.44	12.1

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	433200.39	0.5
45	Sc	NoGas	2587027.26	0.6
45	Sc	H2	608879.94	0.7
45	Sc	He	77993.31	0.9
72	Ge	NoGas	666121.74	0.8
72	Ge	H2	216502.24	0.7
72	Ge	He	61148.64	0.4
115	In	NoGas	2280913.11	0.2
115	In	H2	1380941.82	0.5
115	In	He	247961.08	1.2
159	Tb	NoGas	2803021.55	0.2
209	Bi	NoGas	2687614.89	0.6

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:40:01 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	185.56	11.7
11	B	6	NoGas	7513.04	0.7
27	Al	72	NoGas	14604.03	1.3
51	V	45	He	7196.27	2.8
52	Cr	45	He	275.56	23.5
55	Mn	72	NoGas	40253.89	0.7
56	Fe	45	H2	10109.15	1.2
59	Co	72	NoGas	753.36	4.2
60	Ni	45	He	127.78	22.8
63	Cu	45	He	2658.04	3.3
66	Zn	72	NoGas	6289.19	2.3
75	As	115	He	-11.39	-814.1
78	Se	115	H2	81	4.9
98	Mo	115	NoGas	360.69	26.4
107	Ag	115	NoGas	343.34	6.7
111	Cd	115	NoGas	60.55	31.0
118	Sn	115	NoGas	11780.78	6.3
121	Sb	115	NoGas	4276.25	4.1
125	Te	115	NoGas	48.89	39.9
133	Cs	115	NoGas	747.8	2.0
137	Ba	115	NoGas	286.67	12.3
205	Tl	209	NoGas	275.56	13.5
208	Pb	209	NoGas	1367.81	8.4
232	Th	209	NoGas	284.45	9.5
238	U	209	NoGas	141.11	15.7

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	435987.71	0.1
45	Sc	NoGas	2585226.01	0.7
45	Sc	H2	610252.09	0.5
45	Sc	He	78833.30	0.3
72	Ge	NoGas	666784.26	0.9
72	Ge	H2	219115.16	1.2
72	Ge	He	62290.06	0.7
115	In	NoGas	2263099.89	0.4
115	In	H2	1380478.17	0.5
115	In	He	250099.77	0.5
159	Tb	NoGas	2774630.58	0.3
209	Bi	NoGas	2667994.55	0.5

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:41:57 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	173.34	17.3
11	B	6	NoGas	7119.52	5.4
27	Al	72	NoGas	31926.91	1.8
51	V	45	He	7480.86	1.5
52	Cr	45	He	318.9	11.9
55	Mn	72	NoGas	41265.65	0.9
56	Fe	45	H2	20538.03	0.7
59	Co	72	NoGas	1066.71	3.8
60	Ni	45	He	295.56	11.3
63	Cu	45	He	7757.69	1.4
66	Zn	72	NoGas	27585.51	1.4
75	As	115	He	63.77	43.1
78	Se	115	H2	80	10.0
98	Mo	115	NoGas	518.9	13.7
107	Ag	115	NoGas	468.9	19.2
111	Cd	115	NoGas	102.74	13.2
118	Sn	115	NoGas	30965.98	1.8
121	Sb	115	NoGas	4477.43	3.9
125	Te	115	NoGas	54.45	19.7
133	Cs	115	NoGas	1185.61	1.4
137	Ba	115	NoGas	830.03	7.5
205	Tl	209	NoGas	615.58	6.3
208	Pb	209	NoGas	2260.09	2.5
232	Th	209	NoGas	576.68	3.2
238	U	209	NoGas	471.12	3.5

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	439573.77	0.8
45	Sc	NoGas	2606081.08	0.5
45	Sc	H2	614754.01	0.4
45	Sc	He	79590.76	1.0
72	Ge	NoGas	673042.21	0.5
72	Ge	H2	217511.55	0.9
72	Ge	He	62823.63	1.0
115	In	NoGas	2281326.88	0.8
115	In	H2	1387316.51	0.3
115	In	He	249482.25	0.9
159	Tb	NoGas	2793439.75	0.6
209	Bi	NoGas	2683555.24	0.7

Sample Name	L2
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:43:52 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	2399.09	2.5
11	B	6	NoGas	13058.01	0.9
27	Al	72	NoGas	293489.65	0.3
51	V	45	He	15475.00	1.0
52	Cr	45	He	19996.12	2.1
55	Mn	72	NoGas	309730.27	1.0
56	Fe	45	H2	264674.80	0.8
59	Co	72	NoGas	22577.82	1.4
60	Ni	45	He	14131.44	1.6
63	Cu	45	He	33628.34	2.3
66	Zn	72	NoGas	66955.02	1.2
75	As	115	He	1160.21	10.6
78	Se	115	H2	300.33	8.9
98	Mo	115	NoGas	100323.57	1.3
107	Ag	115	NoGas	16318.52	3.1
111	Cd	115	NoGas	6525.49	0.6
118	Sn	115	NoGas	31074.98	1.1
121	Sb	115	NoGas	103472.30	1.4
125	Te	115	NoGas	9944.74	0.6
133	Cs	115	NoGas	158971.67	0.7
137	Ba	115	NoGas	51611.77	1.9
205	Tl	209	NoGas	37690.92	2.4
208	Pb	209	NoGas	57021.26	0.8
232	Th	209	NoGas	508711.85	0.4
238	U	209	NoGas	50917.48	1.1

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	441835.80	0.0	100.51	60	120	
45	Sc	NoGas	2606081.08	2576950.11	0.2	98.88	60	120	
45	Sc	H2	614754.01	617218.08	0.2	100.4	60	120	
45	Sc	He	79590.76	79735.91	0.6	100.18	60	120	
72	Ge	NoGas	673042.21	674494.68	0.8	100.22	60	120	
72	Ge	H2	217511.55	219055.02	0.9	100.71	60	120	
72	Ge	He	62823.63	62668.41	0.8	99.75	60	120	
115	In	NoGas	2281326.88	2266710.42	0.2	99.36	60	120	
115	In	H2	1387316.51	1385606.16	0.4	99.88	60	120	
115	In	He	249482.25	250565.98	0.4	100.43	60	120	
159	Tb	NoGas	2793439.75	2770301.07	0.3	99.17	60	120	
209	Bi	NoGas	2683555.24	2685555.80	0.7	100.07	60	120	

Sample Name	L3
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:46:05 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	175093.94	1.2
11	B	6	NoGas	19519.54	1.4
27	Al	72	NoGas	5356326.04	1.0
51	V	45	He	171583.16	0.8
52	Cr	45	He	190448.51	0.4
55	Mn	72	NoGas	2146464.01	0.9
56	Fe	45	H2	2537007.89	0.4
59	Co	72	NoGas	1714556.95	0.6
60	Ni	45	He	229318.18	0.6
63	Cu	45	He	605918.74	0.8
66	Zn	72	NoGas	1112487.94	1.1
75	As	115	He	25468.74	1.8
78	Se	115	H2	51928.24	1.1
98	Mo	115	NoGas	783135.89	1.0
107	Ag	115	NoGas	316966.93	1.4
111	Cd	115	NoGas	255090.50	1.4
118	Sn	115	NoGas	824999.97	1.2
121	Sb	115	NoGas	126224.43	1.3
125	Te	115	NoGas	39435.33	1.5
133	Cs	115	NoGas	3063212.79	1.0
137	Ba	115	NoGas	1046224.99	0.5
205	Tl	209	NoGas	1683475.38	1.1
208	Pb	209	NoGas	5488777.80	1.0
232	Th	209	NoGas	2041193.53	1.4
238	U	209	NoGas	2060532.28	1.0

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	442717.55	0.4	100.72	60	120	
45	Sc	NoGas	2606081.08	2593989.89	0.2	99.54	60	120	
45	Sc	H2	614754.01	619102.98	1.0	100.71	60	120	
45	Sc	He	79590.76	79377.34	0.8	99.73	60	120	
72	Ge	NoGas	673042.21	677333.84	0.1	100.64	60	120	
72	Ge	H2	217511.55	218542.03	1.4	100.47	60	120	
72	Ge	He	62823.63	62040.24	0.9	98.75	60	120	
115	In	NoGas	2281326.88	2257560.88	0.2	98.96	60	120	
115	In	H2	1387316.51	1386482.24	0.7	99.94	60	120	
115	In	He	249482.25	249724.91	0.3	100.1	60	120	
159	Tb	NoGas	2793439.75	2782319.89	0.4	99.6	60	120	
209	Bi	NoGas	2683555.24	2697236.49	0.2	100.51	60	120	

Sample Name	L4
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:48:15 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	887673.19	0.6
11	B	6	NoGas	68356.76	1.4
27	Al	72	NoGas	26790213.38	0.8
51	V	45	He	779718.93	0.9
52	Cr	45	He	941965.24	1.1
55	Mn	72	NoGas	10523215.42	0.9
56	Fe	45	H2	12222949.23	0.4
59	Co	72	NoGas	8521782.44	0.8
60	Ni	45	He	1119121.31	1.0
63	Cu	45	He	2922151.14	0.9
66	Zn	72	NoGas	5520546.72	0.8
75	As	115	He	128419.38	1.0
78	Se	115	H2	246620.37	0.5
98	Mo	115	NoGas	3818108.15	0.9
107	Ag	115	NoGas	1548388.90	1.2
111	Cd	115	NoGas	1278686.31	0.7
118	Sn	115	NoGas	3802285.41	0.6
121	Sb	115	NoGas	589442.98	1.4
125	Te	115	NoGas	190515.74	1.4
133	Cs	115	NoGas	15300174.39	1.2
137	Ba	115	NoGas	4929340.08	1.1
205	Tl	209	NoGas	7956940.80	1.0
208	Pb	209	NoGas	27306923.22	0.8
232	Th	209	NoGas	9862237.11	0.5
238	U	209	NoGas	9747138.78	0.8

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	439012.30	0.5	99.87	60	120	
45	Sc	NoGas	2606081.08	2587008.86	0.7	99.27	60	120	
45	Sc	H2	614754.01	607530.84	0.3	98.83	60	120	
45	Sc	He	79590.76	78607.61	0.5	98.76	60	120	
72	Ge	NoGas	673042.21	674855.60	0.9	100.27	60	120	
72	Ge	H2	217511.55	216287.66	1.2	99.44	60	120	
72	Ge	He	62823.63	61583.68	0.7	98.03	60	120	
115	In	NoGas	2281326.88	2247934.67	1.1	98.54	60	120	
115	In	H2	1387316.51	1404428.17	0.5	101.23	60	120	
115	In	He	249482.25	250412.56	0.9	100.37	60	120	
159	Tb	NoGas	2793439.75	2753824.96	1.0	98.58	60	120	
209	Bi	NoGas	2683555.24	2748652.39	0.9	102.43	60	120	

Sample Name	L5
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:50:21 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	1751097.01	1.0
11	B	6	NoGas	128994.18	0.9
27	Al	72	NoGas	53303144.55	1.0
51	V	45	He	1534768.03	1.0
52	Cr	45	He	1860373.47	1.0
55	Mn	72	NoGas	21033839.17	0.6
56	Fe	45	H2	24658979.02	0.7
59	Co	72	NoGas	17037260.43	0.8
60	Ni	45	He	2225771.16	1.2
63	Cu	45	He	5849142.82	1.2
66	Zn	72	NoGas	11102730.39	0.6
75	As	115	He	264285.12	0.9
78	Se	115	H2	500421.30	0.6
98	Mo	115	NoGas	7728186.74	0.5
107	Ag	115	NoGas	3064316.13	0.6
111	Cd	115	NoGas	2566134.35	0.8
118	Sn	115	NoGas	7670674.70	0.5
121	Sb	115	NoGas	1182432.98	1.0
125	Te	115	NoGas	382093.57	0.6
133	Cs	115	NoGas	30931553.21	0.2
137	Ba	115	NoGas	9933469.33	0.9
205	Tl	209	NoGas	16259148.24	0.7
208	Pb	209	NoGas	55489564.74	0.7
232	Th	209	NoGas	19905884.21	0.7
238	U	209	NoGas	19754068.10	0.9

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	438137.76	0.3	99.67	60	120	
45	Sc	NoGas	2606081.08	2575701.98	0.6	98.83	60	120	
45	Sc	H2	614754.01	602801.78	1.1	98.06	60	120	
45	Sc	He	79590.76	77477.24	0.3	97.34	60	120	
72	Ge	NoGas	673042.21	676204.14	0.3	100.47	60	120	
72	Ge	H2	217511.55	216612.73	1.0	99.59	60	120	
72	Ge	He	62823.63	61387.42	0.4	97.71	60	120	
115	In	NoGas	2281326.88	2254334.18	0.3	98.82	60	120	
115	In	H2	1387316.51	1443726.47	0.7	104.07	60	120	
115	In	He	249482.25	259253.91	0.2	103.92	60	120	
159	Tb	NoGas	2793439.75	2781433.92	0.4	99.57	60	120	
209	Bi	NoGas	2683555.24	2869602.04	0.7	106.93	60	120	

Sample Name ICV

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 7:52:25 PM

Sample Type ICV

Total Dilution 1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	48.729	1.3	50	97.46	
11	B	6	NoGas	19.959	0.4	20	99.8	
27	Al	72	NoGas	100.605	0.9	100	100.61	
51	V	45	He	47.296	0.8	50	94.59	
52	Cr	45	He	49.959	0.5	50	99.92	
55	Mn	72	NoGas	50.375	1.0	50	100.75	
56	Fe	45	H2	105.001	9.0	100	105	
59	Co	72	NoGas	51.501	1.2	50	103	
60	Ni	45	He	49.036	0.8	50	98.07	
63	Cu	45	He	50.805	0.5	50	101.61	
66	Zn	72	NoGas	49.608	1.5	50	99.22	
75	As	115	He	48.764	0.9	50	97.53	
78	Se	115	H2	54.017	7.7	50	108.03	
98	Mo	115	NoGas	19.382	1.2	20	96.91	
107	Ag	115	NoGas	20.047	1.5	20	100.24	
111	Cd	115	NoGas	50.493	0.7	50	100.99	
118	Sn	115	NoGas	48.402	0.8	50	96.8	
121	Sb	115	NoGas	20.544	1.5	20	102.72	
125	Te	115	NoGas	50.086	1.7	50	100.17	
133	Cs	115	NoGas	50.390	1.4	50	100.78	
137	Ba	115	NoGas	49.630	1.3	50	99.26	
205	Tl	209	NoGas	54.642	1.7	50	109.28	
208	Pb	209	NoGas	53.879	1.5	50	107.76	
232	Th	209	NoGas	53.001	0.4	50	106	
238	U	209	NoGas	52.658	1.1	50	105.32	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	426622.21	0.6	97.05	60	120	
45	Sc	NoGas	2606081.08	2530173.79	0.5	97.09	60	120	
45	Sc	H2	614754.01	571614.87	7.1	92.98	60	120	
45	Sc	He	79590.76	77435.78	0.6	97.29	60	120	
72	Ge	NoGas	673042.21	663439.11	0.4	98.57	60	120	
72	Ge	H2	217511.55	208198.54	4.1	95.72	60	120	
72	Ge	He	62823.63	61481.16	1.1	97.86	60	120	
115	In	NoGas	2281326.88	2263644.17	0.5	99.22	60	120	
115	In	H2	1387316.51	1328430.78	6.5	95.76	60	120	
115	In	He	249482.25	251497.88	0.8	100.81	60	120	
159	Tb	NoGas	2793439.75	2790489.33	0.4	99.89	60	120	
209	Bi	NoGas	2683555.24	2711505.38	0.5	101.04	60	120	

Sample Name	ICB
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:54:21 PM
Sample Type	ICB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.075	15.1	0.11	
11	B	6	NoGas	-0.093	N/A	1.1	
27	Al	72	NoGas	0.006	186.5	2.2	
51	V	45	He	-0.434	N/A	0.44	
52	Cr	45	He	0.003	120.3	1.1	
55	Mn	72	NoGas	-0.030	N/A	1.1	
59	Co	72	NoGas	0.011	28.4	0.11	
60	Ni	45	He	0.011	70.0	1.32	
63	Cu	45	He	-0.007	N/A	1.1	
66	Zn	72	NoGas	0.059	73.7	4.4	
75	As	115	He	0.137	79.4	0.44	
78	Se	115	H2	0.034	8.5	0.22	
107	Ag	115	NoGas	0.004	20.1	0.11	
111	Cd	115	NoGas	0.007	41.6	0.22	
118	Sn	115	NoGas	0.045	6.9	0.22	
121	Sb	115	NoGas	0.088	12.3	0.88	
125	Te	115	NoGas	0.006	18.6	2.2	
133	Cs	115	NoGas	0.015	20.9	0.44	
137	Ba	115	NoGas	0.011	59.9	1.1	
205	Tl	209	NoGas	0.018	23.3	0.22	
208	Pb	209	NoGas	0.031	20.9	0.22	
232	Th	209	NoGas	0.026	14.7	2.2	
238	U	209	NoGas	0.010	41.7	0.22	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	426843.64	0.4	97.1	60	120	
45	Sc	NoGas	2606081.08	2533497.75	0.3	97.21	60	120	
45	Sc	H2	614754.01	599705.32	0.9	97.55	60	120	
45	Sc	He	79590.76	76840.37	0.5	96.54	60	120	
72	Ge	NoGas	673042.21	665758.39	0.6	98.92	60	120	
72	Ge	H2	217511.55	213974.37	0.3	98.37	60	120	
72	Ge	He	62823.63	61309.26	0.3	97.59	60	120	
115	In	NoGas	2281326.88	2274583.73	0.3	99.7	60	120	
115	In	H2	1387316.51	1378132.55	0.3	99.34	60	120	
115	In	He	249482.25	248836.04	0.6	99.74	60	120	
159	Tb	NoGas	2793439.75	2787306.56	0.6	99.78	60	120	
209	Bi	NoGas	2683555.24	2696904.68	0.5	100.5	60	120	

Sample Name	ICSA
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:56:19 PM
Sample Type	ICSA
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Conc.	Conc. RSD	ExpValue	%QC Low	%QC High	QC Flag
9	Be	6	NoGas	0.044	7.2			500	
11	B	6	NoGas	0.935	5.4			500	
27	Al	72	NoGas	46604.853	0.3			5500000	
51	V	45	He	-0.721	N/A			500	
52	Cr	45	He	0.246	4.8			500	
55	Mn	72	NoGas	0.439	0.7			500	
59	Co	72	NoGas	0.218	1.4			500	
60	Ni	45	He	0.219	2.7			500	
63	Cu	45	He	-0.203	N/A			500	
66	Zn	72	NoGas	-0.420	N/A			500	
75	As	115	He	0.176	28.0			500	
78	Se	115	H2	0.042	11.3			500	
107	Ag	115	NoGas	0.072	1.8			500	
111	Cd	115	NoGas	0.067	123.9			500	
118	Sn	115	NoGas	-0.229	N/A			500	
121	Sb	115	NoGas	0.167	5.9			500	
125	Te	115	NoGas	0.009	56.8			500	
133	Cs	115	NoGas	0.023	14.6			500	
137	Ba	115	NoGas	0.326	1.5			500	
205	Tl	209	NoGas	0.006	10.1			500	
208	Pb	209	NoGas	0.049	9.3			500	
232	Th	209	NoGas	0.038	6.8			500	
238	U	209	NoGas	0.010	5.8			500	

QC ISTD Table

Mass	Name	Tune Mode	Ref CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.766666667	409238.37	1.0	93.1	60	120	
45	Sc	NoGas	2606081.08	2592640.10	2.2	99.48	60	120	
45	Sc	H2	614754.006666667	616014.52	0.9	100.21	60	120	
45	Sc	He	79590.7566666667	80200.71	0.8	100.77	60	120	
72	Ge	NoGas	673042.213333333	715427.76	1.1	106.3	60	120	
72	Ge	H2	217511.546666667	218368.05	1.5	100.39	60	120	
72	Ge	He	62823.6266666667	62849.27	1.2	100.04	60	120	
115	In	NoGas	2281326.88333333	2153113.89	1.4	94.38	60	120	
115	In	H2	1387316.50666667	1327057.00	0.9	95.66	60	120	
115	In	He	249482.246666667	240832.86	0.5	96.53	60	120	
159	Tb	NoGas	2793439.75	2735053.92	1.9	97.91	60	120	
209	Bi	NoGas	2683555.24	2464531.15	1.7	91.84	60	120	

Sample Name	ICSAB
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 7:58:21 PM
Sample Type	ICSB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Conc.	Conc. RSD	ExpValue	%QC Low	%QC High	QC Flag
9	Be	6	NoGas	19.961	1.3	100	80	120	
11	B	6	NoGas	10.429	0.8	100	80	120	
51	V	45	He	18.770	1.9	100	80	120	
52	Cr	45	He	18.957	0.7	100	80	120	
55	Mn	72	NoGas	19.377	0.9	100	80	120	
59	Co	72	NoGas	18.637	0.3	100	80	120	
60	Ni	45	He	18.289	1.1	100	80	120	
63	Cu	45	He	17.749	1.3	100	80	120	
66	Zn	72	NoGas	17.938	2.1	100	80	120	
75	As	115	He	21.410	1.9	100	80	120	
78	Se	115	H2	21.443	1.4	100	80	120	
107	Ag	115	NoGas	9.192	2.1	100	80	120	
111	Cd	115	NoGas	19.457	1.2	100	80	120	
118	Sn	115	NoGas	19.478	2.0	100	80	120	
121	Sb	115	NoGas	10.235	1.5	100	80	120	
125	Te	115	NoGas	19.554	0.3	100	80	120	
133	Cs	115	NoGas	20.299	1.1	100	80	120	
137	Ba	115	NoGas	19.723	2.2	100	80	120	
205	Tl	209	NoGas	21.002	2.6	100	80	120	
208	Pb	209	NoGas	20.778	1.8	100	80	120	
232	Th	209	NoGas	54.621	1.1	100	80	120	
238	U	209	NoGas	22.109	1.6	100	80	120	

QC ISTD Table

Mass	Name	Tune Mode	Ref CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.766666667	416446.32	0.9	94.74	60	120	
45	Sc	NoGas	2606081.08	2719249.68	1.2	104.34	60	120	
45	Sc	H2	614754.006666667	633884.56	0.8	103.11	60	120	
45	Sc	He	79590.7566666667	80939.17	0.5	101.69	60	120	
72	Ge	NoGas	673042.213333333	724955.66	0.4	107.71	60	120	
72	Ge	H2	217511.546666667	224656.40	0.4	103.28	60	120	
72	Ge	He	62823.6266666667	64208.53	1.1	102.2	60	120	
115	In	NoGas	2281326.88333333	2232470.28	1.2	97.86	60	120	
115	In	H2	1387316.50666667	1365967.65	0.2	98.46	60	120	
115	In	He	249482.246666667	246403.10	1.3	98.77	60	120	
159	Tb	NoGas	2793439.75	2817797.94	0.9	100.87	60	120	
209	Bi	NoGas	2683555.24	2540573.02	1.4	94.67	60	120	

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:00:23 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	0.026	0.03	ppb	10.7	200	
11	B	6	NoGas	-0.291	-0.29	ppb	3.2	20	
27	Al	72	NoGas	4.928	4.93	ppb	41.7	1000	
51	V	45	He	-0.862	-0.86	ppb	8.4	200	
52	Cr	45	He	-0.015	-0.02	ppb	16.1	200	
55	Mn	72	NoGas	-0.085	-0.08	ppb	0.4	200	
56	Fe	45	H2	2.524	2.52	ppb	6.6	1000	
59	Co	72	NoGas	0.000	0	ppb	14.8	200	
60	Ni	45	He	0.002	0	ppb	4.5	500	
63	Cu	45	He	-0.390	-0.39	ppb	5.8	500	
66	Zn	72	NoGas	-1.731	-1.73	ppb	1.2	1000	
75	As	115	He	-0.038	-0.04	ppb	265.3	200	
78	Se	115	H2	-0.033	-0.03	ppb	10.9	500	
98	Mo	115	NoGas	0.162	0.16	ppb	28.1	200	
107	Ag	115	NoGas	-0.001	0	ppb	5.4	50	
111	Cd	115	NoGas	-0.003	0	ppb	48.7	200	
118	Sn	115	NoGas	-0.599	-0.6	ppb	5.8	200	
121	Sb	115	NoGas	-0.007	-0.01	ppb	2.5	25	
125	Te	115	NoGas	-0.008	-0.01	ppb	20.4	200	
133	Cs	115	NoGas	-0.001	0	ppb	11.1	200	
137	Ba	115	NoGas	0.007	0.01	ppb	17.1	500	
205	Tl	209	NoGas	0.008	0.01	ppb	3.4	200	
208	Pb	209	NoGas	-0.003	0	ppb	14.6	500	
232	Th	209	NoGas	0.003	0	ppb	24.7	200	
238	U	209	NoGas	-0.002	0	ppb	47.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	445467.62	0.7	101.34	60	120	
45	Sc	NoGas	2606081.08	2746332.25	1.0	105.38	60	120	
45	Sc	H2	614754.01	650048.86	1.1	105.74	60	120	
45	Sc	He	79590.76	83892.45	0.4	105.4	60	120	
72	Ge	NoGas	673042.21	694330.35	0.6	103.16	60	120	
72	Ge	H2	217511.55	234338.77	0.9	107.74	60	120	
72	Ge	He	62823.63	65816.04	2.0	104.76	60	120	
115	In	NoGas	2281326.88	2364161.26	0.6	103.63	60	120	
115	In	H2	1387316.51	1462642.09	0.7	105.43	60	120	
115	In	He	249482.25	263188.37	0.4	105.49	60	120	
159	Tb	NoGas	2793439.75	2856619.40	0.5	102.26	60	120	
209	Bi	NoGas	2683555.24	2734304.41	0.7	101.89	60	120	

Sample Name WG415785PBS

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:02:19 PM

Sample Type Sample

Total Dilution 500.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	6.337	0.01	ppb	8.9	200	
11	B	6	NoGas	346.907	0.69	ppb	1.1	20	
27	Al	72	NoGas	253.702	0.51	ppb	3.5	1000	
51	V	45	He	-18.233	-0.04	ppb	0.2	200	
52	Cr	45	He	29.895	0.06	ppb	6.5	200	
55	Mn	72	NoGas	73.620	0.15	ppb	2.6	200	
56	Fe	45	H2	498.526	1	ppb	1.5	1000	
59	Co	72	NoGas	-0.493	0	ppb	5.1	200	
60	Ni	45	He	15.029	0.03	ppb	5.0	500	
63	Cu	45	He	-125.578	-0.25	ppb	5.1	500	
66	Zn	72	NoGas	-460.160	-0.92	ppb	1.4	1000	
75	As	115	He	63.183	0.13	ppb	28.6	200	
78	Se	115	H2	30.252	0.06	ppb	7.6	500	
98	Mo	115	NoGas	16.472	0.03	ppb	5.2	200	
107	Ag	115	NoGas	0.185	0	ppb	14.1	50	
111	Cd	115	NoGas	-0.194	0	ppb	23.9	200	
118	Sn	115	NoGas	3636.188	7.27	ppb	1.1	200	
121	Sb	115	NoGas	43.140	0.09	ppb	12.1	25	
125	Te	115	NoGas	-5.865	-0.01	ppb	6.0	200	
133	Cs	115	NoGas	-0.108	0	ppb	5.7	200	
137	Ba	115	NoGas	-14.288	-0.03	ppb	6.8	500	
205	Tl	209	NoGas	8.243	0.02	ppb	32.5	200	
208	Pb	209	NoGas	28.335	0.06	ppb	9.0	500	
232	Th	209	NoGas	-1.274	0	ppb	11.4	200	
238	U	209	NoGas	-2.009	0	ppb	14.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	433909.52	0.5	98.71	60	120	
45	Sc	NoGas	2606081.08	2649273.85	0.3	101.66	60	120	
45	Sc	H2	614754.01	610972.27	0.6	99.38	60	120	
45	Sc	He	79590.76	78924.83	1.0	99.16	60	120	
72	Ge	NoGas	673042.21	695166.50	0.7	103.29	60	120	
72	Ge	H2	217511.55	218686.83	0.8	100.54	60	120	
72	Ge	He	62823.63	62595.90	1.4	99.64	60	120	
115	In	NoGas	2281326.88	2315284.78	0.2	101.49	60	120	
115	In	H2	1387316.51	1406375.29	1.0	101.37	60	120	
115	In	He	249482.25	252317.53	0.6	101.14	60	120	
159	Tb	NoGas	2793439.75	2800229.26	0.7	100.24	60	120	
209	Bi	NoGas	2683555.24	2692047.95	1.0	100.32	60	120	

Sample Name WG415785LCSS1

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:04:15 PM

Sample Type Sample

Total Dilution 5000.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	92796.678	18.56	ppb	1.1	200	
11	B	6	NoGas	120143.774	24.03	ppb	1.0	20	OCAL
27	Al	72	NoGas	7728998.419	1545.8	ppb	0.8	1000	OCAL
51	V	45	He	99467.081	19.89	ppb	1.4	200	
52	Cr	45	He	132924.224	26.58	ppb	1.4	200	
55	Mn	72	NoGas	299045.477	59.81	ppb	1.0	200	
56	Fe	45	H2	13757147.385	2751.43	ppb	0.8	1000	OCAL
59	Co	72	NoGas	159975.103	32	ppb	0.9	200	
60	Ni	45	He	122262.385	24.45	ppb	1.2	500	
63	Cu	45	He	159186.720	31.84	ppb	1.3	500	
66	Zn	72	NoGas	183724.012	36.74	ppb	0.6	1000	
75	As	115	He	137094.220	27.42	ppb	1.9	200	
78	Se	115	H2	175828.114	35.17	ppb	0.7	500	
98	Mo	115	NoGas	116224.927	23.24	ppb	1.8	200	
107	Ag	115	NoGas	29386.682	5.88	ppb	1.6	50	
111	Cd	115	NoGas	85886.102	17.18	ppb	0.9	200	
118	Sn	115	NoGas	144863.591	28.97	ppb	1.1	200	
121	Sb	115	NoGas	84221.587	16.84	ppb	0.7	25	
125	Te	115	NoGas	-7.200	0	ppb	12.5	200	
133	Cs	115	NoGas	1343.136	0.27	ppb	1.6	200	
137	Ba	115	NoGas	190636.633	38.13	ppb	1.0	500	
205	Tl	209	NoGas	144024.148	28.8	ppb	2.7	200	
208	Pb	209	NoGas	152466.715	30.49	ppb	1.7	500	
232	Th	209	NoGas	18410.571	3.68	ppb	1.1	200	
238	U	209	NoGas	17947.541	3.59	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	450094.64	0.3	102.39	60	120	
45	Sc	NoGas	2606081.08	2803397.60	0.3	107.57	60	120	
45	Sc	H2	614754.01	662469.92	0.3	107.76	60	120	
45	Sc	He	79590.76	85801.35	0.8	107.8	60	120	
72	Ge	NoGas	673042.21	707842.72	0.4	105.17	60	120	
72	Ge	H2	217511.55	233617.36	0.0	107.4	60	120	
72	Ge	He	62823.63	66703.49	0.1	106.18	60	120	
115	In	NoGas	2281326.88	2355668.11	0.2	103.26	60	120	
115	In	H2	1387316.51	1467629.07	0.1	105.79	60	120	
115	In	He	249482.25	262740.88	0.7	105.31	60	120	
159	Tb	NoGas	2793439.75	2870649.68	0.5	102.76	60	120	
209	Bi	NoGas	2683555.24	2725575.10	0.2	101.57	60	120	

Sample Name WG415785LCSSD1

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:06:11 PM

Sample Type Sample

Total Dilution 5000.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	92874.114	18.58	ppb	0.3	200	
11	B	6	NoGas	122068.180	24.41	ppb	0.4	20	OCAL
27	Al	72	NoGas	7888029.165	1577.61	ppb	0.6	1000	OCAL
51	V	45	He	103569.980	20.71	ppb	1.2	200	
52	Cr	45	He	135822.575	27.16	ppb	0.6	200	
55	Mn	72	NoGas	303849.419	60.77	ppb	0.6	200	
56	Fe	45	H2	14589580.498	2917.92	ppb	0.9	1000	OCAL
59	Co	72	NoGas	160330.390	32.07	ppb	0.9	200	
60	Ni	45	He	124052.015	24.81	ppb	1.2	500	
63	Cu	45	He	161896.833	32.38	ppb	1.2	500	
66	Zn	72	NoGas	185400.569	37.08	ppb	0.8	1000	
75	As	115	He	143719.913	28.74	ppb	1.0	200	
78	Se	115	H2	180828.622	36.17	ppb	1.1	500	
98	Mo	115	NoGas	116300.475	23.26	ppb	1.1	200	
107	Ag	115	NoGas	29685.769	5.94	ppb	0.6	50	
111	Cd	115	NoGas	85625.113	17.12	ppb	1.0	200	
118	Sn	115	NoGas	142419.506	28.48	ppb	1.0	200	
121	Sb	115	NoGas	84020.490	16.8	ppb	0.6	25	
125	Te	115	NoGas	32.871	0.01	ppb	26.6	200	
133	Cs	115	NoGas	1333.582	0.27	ppb	1.2	200	
137	Ba	115	NoGas	202456.988	40.49	ppb	0.5	500	
205	Tl	209	NoGas	149094.981	29.82	ppb	1.9	200	
208	Pb	209	NoGas	151270.962	30.25	ppb	0.6	500	
232	Th	209	NoGas	19416.568	3.88	ppb	0.9	200	
238	U	209	NoGas	17551.469	3.51	ppb	0.5	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	453246.08	0.4	103.11	60	120	
45	Sc	NoGas	2606081.08	2835441.00	0.3	108.8	60	120	
45	Sc	H2	614754.01	671553.98	0.5	109.24	60	120	
45	Sc	He	79590.76	87343.90	0.8	109.74	60	120	
72	Ge	NoGas	673042.21	712214.97	0.1	105.82	60	120	
72	Ge	H2	217511.55	236707.34	0.5	108.83	60	120	
72	Ge	He	62823.63	67696.85	0.7	107.76	60	120	
115	In	NoGas	2281326.88	2339361.18	0.7	102.54	60	120	
115	In	H2	1387316.51	1474777.27	1.0	106.3	60	120	
115	In	He	249482.25	266495.43	1.1	106.82	60	120	
159	Tb	NoGas	2793439.75	2845980.16	0.3	101.88	60	120	
209	Bi	NoGas	2683555.24	2691099.20	0.4	100.28	60	120	

Sample Name L34445-01

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:08:07 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1064.930	2.11	ppb	1.9	200	
11	B	6	NoGas	9561.415	18.93	ppb	0.5	20	
27	Al	72	NoGas	20746600.201	41082.38	ppb	0.6	1000	OCAL
51	V	45	He	110039.516	217.9	ppb	1.0	200	OCAL
52	Cr	45	He	89727.958	177.68	ppb	1.0	200	
55	Mn	72	NoGas	688836.206	1364.03	ppb	0.6	200	OCAL
56	Fe	45	H2	17580552.472	34812.98	ppb	0.6	1000	OCAL
59	Co	72	NoGas	7678.196	15.2	ppb	0.8	200	
60	Ni	45	He	51821.003	102.62	ppb	0.8	500	
63	Cu	45	He	17762.169	35.17	ppb	0.5	500	
66	Zn	72	NoGas	433664.873	858.74	ppb	0.9	1000	
75	As	115	He	8631.984	17.09	ppb	1.7	200	
78	Se	115	H2	2139.260	4.24	ppb	1.1	500	
98	Mo	115	NoGas	4007.777	7.94	ppb	1.2	200	
107	Ag	115	NoGas	1021.414	2.02	ppb	0.9	50	
111	Cd	115	NoGas	14820.694	29.35	ppb	1.2	200	
118	Sn	115	NoGas	4426.925	8.77	ppb	0.7	200	
121	Sb	115	NoGas	578.352	1.14	ppb	1.2	25	
125	Te	115	NoGas	56.517	0.11	ppb	13.5	200	
133	Cs	115	NoGas	2538.992	5.03	ppb	0.9	200	
137	Ba	115	NoGas	155440.166	307.8	ppb	0.9	500	
205	Tl	209	NoGas	684.851	1.36	ppb	2.3	200	
208	Pb	209	NoGas	15000.577	29.7	ppb	0.7	500	
232	Th	209	NoGas	8796.845	17.42	ppb	0.8	200	
238	U	209	NoGas	11150.421	22.08	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	511442.62	0.2	116.35	60	120	
45	Sc	NoGas	2606081.08	3924075.26	0.9	150.57	60	120	FAIL
45	Sc	H2	614754.01	871099.17	0.1	141.7	60	120	FAIL
45	Sc	He	79590.76	111730.99	1.7	140.38	60	120	FAIL
72	Ge	NoGas	673042.21	786247.63	0.3	116.82	60	120	
72	Ge	H2	217511.55	228054.34	0.4	104.85	60	120	
72	Ge	He	62823.63	69957.75	2.0	111.36	60	120	
115	In	NoGas	2281326.88	2293934.93	1.0	100.55	60	120	
115	In	H2	1387316.51	1408084.77	0.9	101.5	60	120	
115	In	He	249482.25	249823.70	1.0	100.14	60	120	
159	Tb	NoGas	2793439.75	3147420.64	0.7	112.67	60	120	
209	Bi	NoGas	2683555.24	2614616.42	0.9	97.43	60	120	

Sample Name L34445-02

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:10:10 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	951.037	1.88	ppb	0.7	200	
11	B	6	NoGas	11176.620	22.13	ppb	1.1	20	OCAL
27	Al	72	NoGas	19609848.741	38831.38	ppb	0.5	1000	OCAL
51	V	45	He	24237.589	48	ppb	1.0	200	
52	Cr	45	He	18474.698	36.58	ppb	0.7	200	
55	Mn	72	NoGas	2545100.979	5039.8	ppb	0.3	200	OCAL
56	Fe	45	H2	20627262.504	40846.06	ppb	0.2	1000	OCAL
59	Co	72	NoGas	13240.282	26.22	ppb	0.4	200	
60	Ni	45	He	20065.957	39.74	ppb	0.5	500	
63	Cu	45	He	15406.251	30.51	ppb	0.9	500	
66	Zn	72	NoGas	73502.697	145.55	ppb	0.2	1000	
75	As	115	He	6797.077	13.46	ppb	1.2	200	
78	Se	115	H2	243.087	0.48	ppb	1.0	500	
98	Mo	115	NoGas	422.829	0.84	ppb	2.6	200	
107	Ag	115	NoGas	102.207	0.2	ppb	0.1	50	
111	Cd	115	NoGas	864.901	1.71	ppb	1.7	200	
118	Sn	115	NoGas	3944.811	7.81	ppb	0.4	200	
121	Sb	115	NoGas	187.447	0.37	ppb	1.9	25	
125	Te	115	NoGas	34.695	0.07	ppb	8.9	200	
133	Cs	115	NoGas	2240.765	4.44	ppb	0.3	200	
137	Ba	115	NoGas	219368.968	434.39	ppb	0.7	500	
205	Tl	209	NoGas	228.570	0.45	ppb	1.9	200	
208	Pb	209	NoGas	21855.306	43.28	ppb	0.7	500	
232	Th	209	NoGas	6919.618	13.7	ppb	1.1	200	
238	U	209	NoGas	676.065	1.34	ppb	0.7	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	537001.63	0.1	122.16	60	120	FAIL
45	Sc	NoGas	2606081.08	3855781.10	0.4	147.95	60	120	FAIL
45	Sc	H2	614754.01	854775.09	0.1	139.04	60	120	FAIL
45	Sc	He	79590.76	108981.35	0.7	136.93	60	120	FAIL
72	Ge	NoGas	673042.21	761246.78	0.5	113.11	60	120	
72	Ge	H2	217511.55	218524.85	0.5	100.47	60	120	
72	Ge	He	62823.63	66953.46	1.6	106.57	60	120	
115	In	NoGas	2281326.88	2286490.26	1.1	100.23	60	120	
115	In	H2	1387316.51	1373678.87	0.4	99.02	60	120	
115	In	He	249482.25	243112.20	0.9	97.45	60	120	
159	Tb	NoGas	2793439.75	3103765.71	1.7	111.11	60	120	
209	Bi	NoGas	2683555.24	2652313.92	1.2	98.84	60	120	

Sample Name L34445-03

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:12:12 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	907.905	1.8	ppb	1.1	200	
11	B	6	NoGas	9873.919	19.55	ppb	1.3	20	
27	Al	72	NoGas	16749355.587	33167.04	ppb	1.0	1000	OCAL
51	V	45	He	41321.776	81.82	ppb	1.7	200	
52	Cr	45	He	47422.471	93.91	ppb	3.0	200	
55	Mn	72	NoGas	1052690.287	2084.54	ppb	1.1	200	OCAL
56	Fe	45	H2	17776971.839	35201.92	ppb	1.0	1000	OCAL
59	Co	72	NoGas	9477.290	18.77	ppb	0.8	200	
60	Ni	45	He	40930.679	81.05	ppb	1.9	500	
63	Cu	45	He	20655.315	40.9	ppb	2.0	500	
66	Zn	72	NoGas	221178.366	437.98	ppb	1.1	1000	
75	As	115	He	7139.086	14.14	ppb	2.3	200	
78	Se	115	H2	3438.662	6.81	ppb	0.7	500	
98	Mo	115	NoGas	2528.076	5.01	ppb	1.2	200	
107	Ag	115	NoGas	273.933	0.54	ppb	2.8	50	
111	Cd	115	NoGas	4218.634	8.35	ppb	1.1	200	
118	Sn	115	NoGas	4196.372	8.31	ppb	0.8	200	
121	Sb	115	NoGas	337.586	0.67	ppb	0.5	25	
125	Te	115	NoGas	48.496	0.1	ppb	8.9	200	
133	Cs	115	NoGas	2422.768	4.8	ppb	1.8	200	
137	Ba	115	NoGas	125152.245	247.83	ppb	1.1	500	
205	Tl	209	NoGas	328.497	0.65	ppb	3.6	200	
208	Pb	209	NoGas	12471.688	24.7	ppb	1.7	500	
232	Th	209	NoGas	7413.700	14.68	ppb	1.2	200	
238	U	209	NoGas	5871.888	11.63	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	506609.20	0.4	115.25	60	120	
45	Sc	NoGas	2606081.08	3941574.43	0.6	151.25	60	120	FAIL
45	Sc	H2	614754.01	875776.16	0.4	142.46	60	120	FAIL
45	Sc	He	79590.76	111400.54	0.7	139.97	60	120	FAIL
72	Ge	NoGas	673042.21	793721.79	0.5	117.93	60	120	
72	Ge	H2	217511.55	230070.77	0.3	105.77	60	120	
72	Ge	He	62823.63	70560.78	1.6	112.32	60	120	
115	In	NoGas	2281326.88	2344318.86	1.1	102.76	60	120	
115	In	H2	1387316.51	1416911.12	0.5	102.13	60	120	
115	In	He	249482.25	250829.15	0.2	100.54	60	120	
159	Tb	NoGas	2793439.75	3170794.80	0.8	113.51	60	120	
209	Bi	NoGas	2683555.24	2678791.77	1.0	99.82	60	120	

Sample Name L34445-04

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:14:15 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1147.755	2.25	ppb	0.7	200	
11	B	6	NoGas	15594.992	30.58	ppb	0.4	20	OCAL
27	Al	72	NoGas	22033038.748	43202.04	ppb	1.0	1000	OCAL
51	V	45	He	75081.439	147.22	ppb	0.4	200	
52	Cr	45	He	88031.787	172.61	ppb	0.8	200	
55	Mn	72	NoGas	1385722.181	2717.1	ppb	0.6	200	OCAL
56	Fe	45	H2	18385006.348	36049.03	ppb	0.5	1000	OCAL
59	Co	72	NoGas	9845.207	19.3	ppb	0.5	200	
60	Ni	45	He	55975.968	109.76	ppb	0.5	500	
63	Cu	45	He	26121.735	51.22	ppb	0.2	500	
66	Zn	72	NoGas	370858.988	727.17	ppb	0.6	1000	
75	As	115	He	8924.463	17.5	ppb	0.6	200	
78	Se	115	H2	4224.307	8.28	ppb	1.7	500	
98	Mo	115	NoGas	6182.789	12.12	ppb	0.4	200	
107	Ag	115	NoGas	1567.097	3.07	ppb	0.2	50	
111	Cd	115	NoGas	12281.609	24.08	ppb	0.9	200	
118	Sn	115	NoGas	4317.269	8.46	ppb	0.6	200	
121	Sb	115	NoGas	747.562	1.47	ppb	0.9	25	
125	Te	115	NoGas	75.990	0.15	ppb	9.6	200	
133	Cs	115	NoGas	2909.872	5.71	ppb	1.4	200	
137	Ba	115	NoGas	171700.906	336.67	ppb	1.4	500	
205	Tl	209	NoGas	459.155	0.9	ppb	2.5	200	
208	Pb	209	NoGas	15056.524	29.52	ppb	0.6	500	
232	Th	209	NoGas	8320.746	16.32	ppb	0.8	200	
238	U	209	NoGas	11733.941	23.01	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	518881.23	0.2	118.04	60	120	
45	Sc	NoGas	2606081.08	4191637.75	0.4	160.84	60	120	FAIL
45	Sc	H2	614754.01	926757.05	0.7	150.75	60	120	FAIL
45	Sc	He	79590.76	119232.36	0.8	149.81	60	120	FAIL
72	Ge	NoGas	673042.21	794611.01	0.4	118.06	60	120	
72	Ge	H2	217511.55	227768.69	1.0	104.72	60	120	
72	Ge	He	62823.63	71672.87	0.5	114.09	60	120	
115	In	NoGas	2281326.88	2337709.88	1.0	102.47	60	120	
115	In	H2	1387316.51	1406339.01	0.7	101.37	60	120	
115	In	He	249482.25	247613.51	0.7	99.25	60	120	
159	Tb	NoGas	2793439.75	3244609.38	0.8	116.15	60	120	
209	Bi	NoGas	2683555.24	2659149.97	0.5	99.09	60	120	

Sample Name	CCV
File Name	022_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:16:17 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	104.861	0.6	100	104.86	
11	B	6	NoGas	10.370	1.0	10	103.7	
27	Al	72	NoGas	513.436	1.2	500	102.69	
51	V	45	He	101.076	0.6	100	101.08	
52	Cr	45	He	101.181	0.3	100	101.18	
55	Mn	72	NoGas	102.456	0.9	100	102.46	
56	Fe	45	H2	513.998	1.1	500	102.8	
59	Co	72	NoGas	102.850	0.5	100	102.85	
60	Ni	45	He	252.564	0.3	250	101.03	
63	Cu	45	He	255.489	0.3	250	102.2	
66	Zn	72	NoGas	509.749	0.9	500	101.95	
75	As	115	He	103.325	1.3	100	103.32	
78	Se	115	H2	254.090	1.3	250	101.64	
98	Mo	115	NoGas	101.266	0.8	100	101.27	
107	Ag	115	NoGas	25.417	1.1	25	101.67	
111	Cd	115	NoGas	98.203	1.4	100	98.2	
118	Sn	115	NoGas	100.118	1.3	100	100.12	
121	Sb	115	NoGas	12.354	1.1	12.5	98.83	
125	Te	115	NoGas	98.043	0.7	100	98.04	
133	Cs	115	NoGas	100.596	1.3	100	100.6	
137	Ba	115	NoGas	250.571	1.1	250	100.23	
205	Tl	209	NoGas	101.850	1.2	100	101.85	
208	Pb	209	NoGas	254.990	0.8	250	102	
232	Th	209	NoGas	103.161	0.6	100	103.16	
238	U	209	NoGas	101.884	0.8	100	101.88	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	439573.77	436645.19	0.4	99.33	60	120	
Sc	45	NoGas	2606081.08	2844298.50	0.5	109.14	60	120	
Sc	45	H2	614754.01	659860.09	1.1	107.34	60	120	
Sc	45	He	79590.76	84363.02	0.4	106	60	120	
Ge	72	NoGas	673042.21	727074.59	0.5	108.03	60	120	
Ge	72	H2	217511.55	236967.57	1.1	108.94	60	120	
Ge	72	He	62823.63	66485.80	0.4	105.83	60	120	
In	115	NoGas	2281326.88	2410697.36	0.4	105.67	60	120	
In	115	H2	1387316.51	1523714.55	1.3	109.83	60	120	
In	115	He	249482.25	268061.95	0.5	107.45	60	120	
Tb	159	NoGas	2793439.75	2909587.45	0.4	104.16	60	120	
Bi	209	NoGas	2683555.24	2902099.54	0.5	108.14	60	120	

Sample Name	CCB
File Name	023_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:18:12 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.068	16.1	0.15	
11	B	6	NoGas	-0.070	N/A	1.5	
27	Al	72	NoGas	0.379	14.5	3	
51	V	45	He	-0.554	N/A	0.6	
52	Cr	45	He	0.009	23.2	1.5	
55	Mn	72	NoGas	0.042	20.6	1.5	
59	Co	72	NoGas	0.013	44.0	0.15	
60	Ni	45	He	0.028	10.6	1.8	
63	Cu	45	He	-0.016	N/A	1.5	
66	Zn	72	NoGas	0.117	42.1	6	
75	As	115	He	0.051	89.2	0.6	
78	Se	115	H2	0.010	43.2	0.3	
107	Ag	115	NoGas	0.004	40.6	0.15	
111	Cd	115	NoGas	0.013	21.4	0.3	
118	Sn	115	NoGas	0.028	8.2	0.3	
121	Sb	115	NoGas	0.036	18.1	1.2	
125	Te	115	NoGas	0.022	45.3	3	
133	Cs	115	NoGas	0.018	34.6	0.6	
137	Ba	115	NoGas	0.032	44.1	1.5	
205	Tl	209	NoGas	0.021	24.9	0.3	
208	Pb	209	NoGas	0.045	40.0	0.3	
232	Th	209	NoGas	0.021	32.2	3	
238	U	209	NoGas	0.013	41.1	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	437771.03	0.2	99.59	60	120	
45	Sc	NoGas	2606081.08	2816776.00	0.6	108.08	60	120	
45	Sc	H2	614754.01	660595.20	1.4	107.46	60	120	
45	Sc	He	79590.76	84896.20	0.2	106.67	60	120	
72	Ge	NoGas	673042.21	721619.28	0.7	107.22	60	120	
72	Ge	H2	217511.55	236587.64	1.0	108.77	60	120	
72	Ge	He	62823.63	66284.70	0.7	105.51	60	120	
115	In	NoGas	2281326.88	2399422.60	0.6	105.18	60	120	
115	In	H2	1387316.51	1489895.18	1.7	107.39	60	120	
115	In	He	249482.25	261437.35	0.9	104.79	60	120	
159	Tb	NoGas	2793439.75	2892325.02	0.9	103.54	60	120	
209	Bi	NoGas	2683555.24	2770960.51	1.0	103.26	60	120	

Sample Name L34446-01

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:20:09 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1057.584	2.07	ppb	2.0	200	
11	B	6	NoGas	10380.563	20.35	ppb	1.1	20	OCAL
27	Al	72	NoGas	24285033.278	47617.71	ppb	0.7	1000	OCAL
51	V	45	He	22164.070	43.46	ppb	1.4	200	
52	Cr	45	He	19118.220	37.49	ppb	1.2	200	
55	Mn	72	NoGas	3664210.416	7184.73	ppb	0.9	200	OCAL
56	Fe	45	H2	24606887.093	48248.8	ppb	0.5	1000	OCAL
59	Co	72	NoGas	15792.128	30.96	ppb	0.9	200	
60	Ni	45	He	20710.167	40.61	ppb	1.6	500	
63	Cu	45	He	16416.104	32.19	ppb	1.1	500	
66	Zn	72	NoGas	97197.005	190.58	ppb	1.0	1000	
75	As	115	He	6192.395	12.14	ppb	1.4	200	
78	Se	115	H2	182.827	0.36	ppb	3.0	500	
98	Mo	115	NoGas	566.186	1.11	ppb	1.3	200	
107	Ag	115	NoGas	55.880	0.11	ppb	1.8	50	
111	Cd	115	NoGas	651.331	1.28	ppb	2.2	200	
118	Sn	115	NoGas	3982.154	7.81	ppb	1.1	200	
121	Sb	115	NoGas	210.134	0.41	ppb	2.0	25	
125	Te	115	NoGas	33.103	0.06	ppb	3.8	200	
133	Cs	115	NoGas	4068.253	7.98	ppb	1.7	200	
137	Ba	115	NoGas	252835.491	495.76	ppb	1.1	500	
205	Tl	209	NoGas	161.415	0.32	ppb	4.5	200	
208	Pb	209	NoGas	33157.281	65.01	ppb	1.2	500	
232	Th	209	NoGas	7233.602	14.18	ppb	0.9	200	
238	U	209	NoGas	907.600	1.78	ppb	1.1	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	601429.68	0.2	136.82	60	120	FAIL
45	Sc	NoGas	2606081.08	4456015.10	1.0	170.99	60	120	FAIL
45	Sc	H2	614754.01	980101.77	0.5	159.43	60	120	FAIL
45	Sc	He	79590.76	124780.64	0.9	156.78	60	120	FAIL
72	Ge	NoGas	673042.21	816181.34	0.4	121.27	60	120	FAIL
72	Ge	H2	217511.55	225099.31	1.0	103.49	60	120	
72	Ge	He	62823.63	69176.18	0.2	110.11	60	120	
115	In	NoGas	2281326.88	2296554.51	0.6	100.67	60	120	
115	In	H2	1387316.51	1398035.12	1.0	100.77	60	120	
115	In	He	249482.25	244016.43	0.6	97.81	60	120	
159	Tb	NoGas	2793439.75	3102414.18	1.3	111.06	60	120	
209	Bi	NoGas	2683555.24	2641593.85	1.3	98.44	60	120	

Sample Name L34446-02

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:22:11 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	565.772	1.12	ppb	1.3	200	
11	B	6	NoGas	12263.420	24.28	ppb	0.6	20	OCAL
27	Al	72	NoGas	4133153.521	8184.46	ppb	0.4	1000	OCAL
51	V	45	He	21160.841	41.9	ppb	0.5	200	
52	Cr	45	He	83014.012	164.38	ppb	0.7	200	
55	Mn	72	NoGas	279996.583	554.45	ppb	0.3	200	OCAL
56	Fe	45	H2	8842787.179	17510.47	ppb	0.9	1000	OCAL
59	Co	72	NoGas	3005.376	5.95	ppb	0.2	200	
60	Ni	45	He	79097.860	156.63	ppb	0.7	500	
63	Cu	45	He	26128.184	51.74	ppb	0.8	500	
66	Zn	72	NoGas	148293.858	293.65	ppb	0.6	1000	
75	As	115	He	6359.201	12.59	ppb	2.5	200	
78	Se	115	H2	6582.383	13.03	ppb	1.3	500	
98	Mo	115	NoGas	1578.749	3.13	ppb	0.7	200	
107	Ag	115	NoGas	188.115	0.37	ppb	1.3	50	
111	Cd	115	NoGas	3565.768	7.06	ppb	0.8	200	
118	Sn	115	NoGas	3593.570	7.12	ppb	0.3	200	
121	Sb	115	NoGas	188.440	0.37	ppb	1.6	25	
125	Te	115	NoGas	22.358	0.04	ppb	10.7	200	
133	Cs	115	NoGas	1075.646	2.13	ppb	0.5	200	
137	Ba	115	NoGas	55210.169	109.33	ppb	0.9	500	
205	Tl	209	NoGas	204.044	0.4	ppb	1.8	200	
208	Pb	209	NoGas	4545.092	9	ppb	0.3	500	
232	Th	209	NoGas	5710.393	11.31	ppb	0.9	200	
238	U	209	NoGas	3962.125	7.85	ppb	0.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	420623.24	0.7	95.69	60	120	
45	Sc	NoGas	2606081.08	3278799.59	0.8	125.81	60	120	FAIL
45	Sc	H2	614754.01	739726.01	0.8	120.33	60	120	FAIL
45	Sc	He	79590.76	94434.66	1.2	118.65	60	120	
72	Ge	NoGas	673042.21	732277.54	0.6	108.8	60	120	
72	Ge	H2	217511.55	221688.29	0.9	101.92	60	120	
72	Ge	He	62823.63	70723.74	0.7	112.58	60	120	
115	In	NoGas	2281326.88	2299654.94	1.0	100.8	60	120	
115	In	H2	1387316.51	1398876.37	1.2	100.83	60	120	
115	In	He	249482.25	246318.94	1.0	98.73	60	120	
159	Tb	NoGas	2793439.75	3353170.84	1.4	120.04	60	120	FAIL
209	Bi	NoGas	2683555.24	2656127.53	1.4	98.98	60	120	

Sample Name L34446-03

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:24:12 PM

Sample Type Sample

Total Dilution 520.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	991.542	1.91	ppb	1.8	200	
11	B	6	NoGas	11682.877	22.47	ppb	0.6	20	OCAL
27	Al	72	NoGas	24364050.003	46853.94	ppb	0.4	1000	OCAL
51	V	45	He	21555.294	41.45	ppb	0.6	200	
52	Cr	45	He	19721.988	37.93	ppb	1.0	200	
55	Mn	72	NoGas	2537216.335	4879.26	ppb	0.8	200	OCAL
56	Fe	45	H2	22943021.828	44121.2	ppb	0.5	1000	OCAL
59	Co	72	NoGas	14846.213	28.55	ppb	0.1	200	
60	Ni	45	He	20064.140	38.58	ppb	0.3	500	
63	Cu	45	He	20891.517	40.18	ppb	0.7	500	
66	Zn	72	NoGas	115865.213	222.82	ppb	0.3	1000	
75	As	115	He	5538.990	10.65	ppb	1.2	200	
78	Se	115	H2	348.874	0.67	ppb	1.9	500	
98	Mo	115	NoGas	639.343	1.23	ppb	0.2	200	
107	Ag	115	NoGas	76.378	0.15	ppb	2.0	50	
111	Cd	115	NoGas	912.750	1.76	ppb	4.5	200	
118	Sn	115	NoGas	4053.451	7.8	ppb	0.4	200	
121	Sb	115	NoGas	149.667	0.29	ppb	2.4	25	
125	Te	115	NoGas	32.631	0.06	ppb	22.3	200	
133	Cs	115	NoGas	3664.723	7.05	ppb	0.4	200	
137	Ba	115	NoGas	217268.769	417.82	ppb	0.8	500	
205	Tl	209	NoGas	174.156	0.34	ppb	3.5	200	
208	Pb	209	NoGas	22388.926	43.06	ppb	0.8	500	
232	Th	209	NoGas	6325.359	12.16	ppb	0.5	200	
238	U	209	NoGas	1019.212	1.96	ppb	0.7	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	594508.76	0.2	135.25	60	120	FAIL
45	Sc	NoGas	2606081.08	4214265.39	1.1	161.71	60	120	FAIL
45	Sc	H2	614754.01	937343.19	0.9	152.47	60	120	FAIL
45	Sc	He	79590.76	120810.72	0.2	151.79	60	120	FAIL
72	Ge	NoGas	673042.21	767859.80	0.8	114.09	60	120	
72	Ge	H2	217511.55	216547.38	1.5	99.56	60	120	
72	Ge	He	62823.63	66161.89	1.1	105.31	60	120	
115	In	NoGas	2281326.88	2278329.42	1.4	99.87	60	120	
115	In	H2	1387316.51	1355839.60	1.0	97.73	60	120	
115	In	He	249482.25	238054.74	0.5	95.42	60	120	
159	Tb	NoGas	2793439.75	3078527.59	0.8	110.21	60	120	
209	Bi	NoGas	2683555.24	2634494.55	1.4	98.17	60	120	

Sample Name L34446-04

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:26:15 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1571.786	3.08	ppb	1.7	200	
11	B	6	NoGas	21992.965	43.12	ppb	1.7	20	OCAL
27	Al	72	NoGas	16387885.914	32133.11	ppb	1.1	1000	OCAL
51	V	45	He	58005.691	113.74	ppb	1.3	200	
52	Cr	45	He	24041.989	47.14	ppb	0.7	200	
55	Mn	72	NoGas	6491289.466	12728.02	ppb	1.1	200	OCAL
56	Fe	45	H2	27603927.565	54125.35	ppb	0.1	1000	OCAL
59	Co	72	NoGas	36829.107	72.21	ppb	1.3	200	
60	Ni	45	He	83969.023	164.64	ppb	1.3	500	
63	Cu	45	He	32393.687	63.52	ppb	1.1	500	
66	Zn	72	NoGas	262669.500	515.04	ppb	1.2	1000	
75	As	115	He	18992.555	37.24	ppb	2.7	200	
78	Se	115	H2	894.746	1.75	ppb	2.2	500	
98	Mo	115	NoGas	6165.018	12.09	ppb	0.9	200	
107	Ag	115	NoGas	392.603	0.77	ppb	2.6	50	
111	Cd	115	NoGas	18521.250	36.32	ppb	1.7	200	
118	Sn	115	NoGas	4109.039	8.06	ppb	1.3	200	
121	Sb	115	NoGas	707.078	1.39	ppb	1.6	25	
125	Te	115	NoGas	65.761	0.13	ppb	15.9	200	
133	Cs	115	NoGas	3028.463	5.94	ppb	1.4	200	
137	Ba	115	NoGas	476972.539	935.24	ppb	1.2	500	OCAL
205	Tl	209	NoGas	474.689	0.93	ppb	2.6	200	
208	Pb	209	NoGas	40189.504	78.8	ppb	1.1	500	
232	Th	209	NoGas	7432.102	14.57	ppb	0.9	200	
238	U	209	NoGas	7023.009	13.77	ppb	0.8	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	460295.61	0.3	104.71	60	120	
45	Sc	NoGas	2606081.08	4595929.40	1.0	176.35	60	120	FAIL
45	Sc	H2	614754.01	997035.00	0.3	162.18	60	120	FAIL
45	Sc	He	79590.76	126075.22	0.4	158.4	60	120	FAIL
72	Ge	NoGas	673042.21	826614.95	0.5	122.82	60	120	FAIL
72	Ge	H2	217511.55	223528.94	0.6	102.77	60	120	
72	Ge	He	62823.63	69155.08	0.8	110.08	60	120	
115	In	NoGas	2281326.88	2325754.69	1.2	101.95	60	120	
115	In	H2	1387316.51	1396982.31	0.2	100.7	60	120	
115	In	He	249482.25	242916.43	0.5	97.37	60	120	
159	Tb	NoGas	2793439.75	3199680.71	0.6	114.54	60	120	
209	Bi	NoGas	2683555.24	2681056.14	1.2	99.91	60	120	

Sample Name L34446-05

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:28:17 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1118.615	2.22	ppb	1.8	200	
11	B	6	NoGas	20837.354	41.26	ppb	0.8	20	OCAL
27	Al	72	NoGas	5514168.164	10919.14	ppb	0.6	1000	OCAL
51	V	45	He	8041.750	15.92	ppb	0.5	200	
52	Cr	45	He	7378.669	14.61	ppb	1.0	200	
55	Mn	72	NoGas	17280365.777	34218.55	ppb	1.1	200	OCAL
56	Fe	45	H2	24750518.139	49010.93	ppb	0.4	1000	OCAL
59	Co	72	NoGas	14934.011	29.57	ppb	0.8	200	
60	Ni	45	He	33459.683	66.26	ppb	1.0	500	
63	Cu	45	He	15590.864	30.87	ppb	0.3	500	
66	Zn	72	NoGas	82550.067	163.46	ppb	0.8	1000	
75	As	115	He	6713.431	13.29	ppb	2.2	200	
78	Se	115	H2	429.235	0.85	ppb	2.0	500	
98	Mo	115	NoGas	11585.931	22.94	ppb	1.0	200	
107	Ag	115	NoGas	100.981	0.2	ppb	1.2	50	
111	Cd	115	NoGas	526.505	1.04	ppb	5.5	200	
118	Sn	115	NoGas	3737.130	7.4	ppb	0.4	200	
121	Sb	115	NoGas	183.013	0.36	ppb	1.8	25	
125	Te	115	NoGas	29.370	0.06	ppb	7.2	200	
133	Cs	115	NoGas	3053.218	6.05	ppb	0.5	200	
137	Ba	115	NoGas	165202.784	327.13	ppb	0.4	500	
205	Tl	209	NoGas	319.167	0.63	ppb	2.3	200	
208	Pb	209	NoGas	17760.035	35.17	ppb	0.9	500	
232	Th	209	NoGas	6009.876	11.9	ppb	0.8	200	
238	U	209	NoGas	678.381	1.34	ppb	0.9	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	404846.55	0.5	92.1	60	120	
45	Sc	NoGas	2606081.08	3983450.40	0.5	152.85	60	120	FAIL
45	Sc	H2	614754.01	868383.73	0.3	141.26	60	120	FAIL
45	Sc	He	79590.76	109496.42	1.4	137.57	60	120	FAIL
72	Ge	NoGas	673042.21	764237.88	0.4	113.55	60	120	
72	Ge	H2	217511.55	214669.96	0.7	98.69	60	120	
72	Ge	He	62823.63	63693.12	2.2	101.38	60	120	
115	In	NoGas	2281326.88	2279328.10	1.1	99.91	60	120	
115	In	H2	1387316.51	1361299.77	1.2	98.12	60	120	
115	In	He	249482.25	234099.50	0.9	93.83	60	120	
159	Tb	NoGas	2793439.75	3024791.20	1.0	108.28	60	120	
209	Bi	NoGas	2683555.24	2616703.02	1.5	97.51	60	120	

Sample Name L34446-06

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:30:20 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	924.123	1.83	ppb	1.7	200	
11	B	6	NoGas	20844.547	41.28	ppb	1.0	20	OCAL
27	Al	72	NoGas	4697365.022	9301.71	ppb	0.6	1000	OCAL
51	V	45	He	6737.972	13.34	ppb	0.1	200	
52	Cr	45	He	5471.154	10.83	ppb	1.0	200	
55	Mn	72	NoGas	6426728.681	12726.2	ppb	0.9	200	OCAL
56	Fe	45	H2	26706039.165	52883.25	ppb	0.3	1000	OCAL
59	Co	72	NoGas	14812.064	29.33	ppb	0.5	200	
60	Ni	45	He	31328.651	62.04	ppb	7.4	500	
63	Cu	45	He	12120.142	24	ppb	0.6	500	
66	Zn	72	NoGas	37007.267	73.28	ppb	0.4	1000	
75	As	115	He	3942.413	7.81	ppb	0.8	200	
78	Se	115	H2	454.316	0.9	ppb	0.5	500	
98	Mo	115	NoGas	1063.362	2.11	ppb	0.3	200	
107	Ag	115	NoGas	61.155	0.12	ppb	1.0	50	
111	Cd	115	NoGas	514.844	1.02	ppb	4.7	200	
118	Sn	115	NoGas	3687.676	7.3	ppb	0.9	200	
121	Sb	115	NoGas	86.639	0.17	ppb	1.2	25	
125	Te	115	NoGas	22.080	0.04	ppb	10.9	200	
133	Cs	115	NoGas	3167.623	6.27	ppb	0.6	200	
137	Ba	115	NoGas	51805.790	102.59	ppb	0.8	500	
205	Tl	209	NoGas	325.475	0.64	ppb	2.8	200	
208	Pb	209	NoGas	13557.101	26.85	ppb	0.6	500	
232	Th	209	NoGas	5301.025	10.5	ppb	0.9	200	
238	U	209	NoGas	524.153	1.04	ppb	1.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	394224.94	0.4	89.68	60	120	
45	Sc	NoGas	2606081.08	3799654.02	0.9	145.8	60	120	FAIL
45	Sc	H2	614754.01	839311.94	0.4	136.53	60	120	FAIL
45	Sc	He	79590.76	105452.35	1.0	132.49	60	120	FAIL
72	Ge	NoGas	673042.21	756117.83	0.4	112.34	60	120	
72	Ge	H2	217511.55	213817.75	0.7	98.3	60	120	
72	Ge	He	62823.63	62207.74	1.4	99.02	60	120	
115	In	NoGas	2281326.88	2263977.06	1.2	99.24	60	120	
115	In	H2	1387316.51	1355934.39	0.9	97.74	60	120	
115	In	He	249482.25	231640.27	1.6	92.85	60	120	
159	Tb	NoGas	2793439.75	2983479.95	1.5	106.8	60	120	
209	Bi	NoGas	2683555.24	2618376.15	1.9	97.57	60	120	

Sample Name L34446-07

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:32:23 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1171.718	2.3	ppb	0.9	200	
11	B	6	NoGas	16996.100	33.33	ppb	0.8	20	OCAL
27	Al	72	NoGas	9564259.096	18753.45	ppb	0.8	1000	OCAL
51	V	45	He	10441.680	20.47	ppb	0.5	200	
52	Cr	45	He	9349.775	18.33	ppb	0.2	200	
55	Mn	72	NoGas	10154127.322	19910.05	ppb	1.1	200	OCAL
56	Fe	45	H2	25245466.049	49500.91	ppb	0.7	1000	OCAL
59	Co	72	NoGas	16085.042	31.54	ppb	0.9	200	
60	Ni	45	He	28540.251	55.96	ppb	0.8	500	
63	Cu	45	He	19428.191	38.09	ppb	0.7	500	
66	Zn	72	NoGas	131841.888	258.51	ppb	0.8	1000	
75	As	115	He	12041.484	23.61	ppb	1.5	200	
78	Se	115	H2	840.282	1.65	ppb	0.4	500	
98	Mo	115	NoGas	1057.475	2.07	ppb	0.7	200	
107	Ag	115	NoGas	151.813	0.3	ppb	1.0	50	
111	Cd	115	NoGas	732.158	1.44	ppb	1.8	200	
118	Sn	115	NoGas	3984.436	7.81	ppb	0.7	200	
121	Sb	115	NoGas	280.566	0.55	ppb	0.9	25	
125	Te	115	NoGas	23.987	0.05	ppb	9.5	200	
133	Cs	115	NoGas	3095.239	6.07	ppb	0.5	200	
137	Ba	115	NoGas	402151.937	788.53	ppb	0.5	500	OCAL
205	Tl	209	NoGas	276.625	0.54	ppb	0.8	200	
208	Pb	209	NoGas	28830.276	56.53	ppb	0.6	500	
232	Th	209	NoGas	6929.641	13.59	ppb	0.5	200	
238	U	209	NoGas	590.902	1.16	ppb	1.4	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	417461.45	0.7	94.97	60	120	
45	Sc	NoGas	2606081.08	4123964.14	1.1	158.24	60	120	FAIL
45	Sc	H2	614754.01	911767.95	1.4	148.31	60	120	FAIL
45	Sc	He	79590.76	116284.33	0.7	146.1	60	120	FAIL
72	Ge	NoGas	673042.21	759572.50	0.5	112.86	60	120	
72	Ge	H2	217511.55	213600.29	1.9	98.2	60	120	
72	Ge	He	62823.63	65161.86	1.2	103.72	60	120	
115	In	NoGas	2281326.88	2282338.55	1.7	100.04	60	120	
115	In	H2	1387316.51	1356490.99	1.5	97.78	60	120	
115	In	He	249482.25	237769.97	0.4	95.31	60	120	
159	Tb	NoGas	2793439.75	3055101.48	1.1	109.37	60	120	
209	Bi	NoGas	2683555.24	2644148.09	1.2	98.53	60	120	

Sample Name L34446-07MS

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:34:25 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	29082.357	57.02	ppb	1.4	200	
11	B	6	NoGas	22781.222	44.67	ppb	0.8	20	OCAL
27	Al	72	NoGas	10243591.027	20085.47	ppb	1.4	1000	OCAL
51	V	45	He	27989.684	54.88	ppb	0.5	200	
52	Cr	45	He	28804.190	56.48	ppb	0.7	200	
55	Mn	72	NoGas	11423704.779	22399.42	ppb	1.3	200	OCAL
56	Fe	45	H2	26474438.457	51910.66	ppb	0.2	1000	OCAL
59	Co	72	NoGas	40940.330	80.28	ppb	1.1	200	
60	Ni	45	He	51890.498	101.75	ppb	0.9	500	
63	Cu	45	He	36588.922	71.74	ppb	0.8	500	
66	Zn	72	NoGas	160138.865	314	ppb	1.2	1000	
75	As	115	He	40123.094	78.67	ppb	1.0	200	
78	Se	115	H2	14225.427	27.89	ppb	0.3	500	
98	Mo	115	NoGas	24496.903	48.03	ppb	0.7	200	
107	Ag	115	NoGas	5302.342	10.4	ppb	1.0	50	
111	Cd	115	NoGas	26658.056	52.27	ppb	0.9	200	
118	Sn	115	NoGas	22013.589	43.16	ppb	1.1	200	
121	Sb	115	NoGas	1293.759	2.54	ppb	0.9	25	
125	Te	115	NoGas	12352.538	24.22	ppb	0.2	200	
133	Cs	115	NoGas	13500.331	26.47	ppb	1.3	200	
137	Ba	115	NoGas	483768.796	948.57	ppb	1.2	500	OCAL
205	Tl	209	NoGas	27149.034	53.23	ppb	1.6	200	
208	Pb	209	NoGas	58924.633	115.54	ppb	0.9	500	
232	Th	209	NoGas	18452.156	36.18	ppb	1.1	200	
238	U	209	NoGas	15231.412	29.87	ppb	0.7	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	415729.86	1.3	94.58	60	120	
45	Sc	NoGas	2606081.08	4103084.56	0.9	157.44	60	120	FAIL
45	Sc	H2	614754.01	902799.10	0.9	146.86	60	120	FAIL
45	Sc	He	79590.76	114395.91	0.8	143.73	60	120	FAIL
72	Ge	NoGas	673042.21	763504.07	1.4	113.44	60	120	
72	Ge	H2	217511.55	212650.59	0.5	97.77	60	120	
72	Ge	He	62823.63	64528.86	1.0	102.71	60	120	
115	In	NoGas	2281326.88	2259334.54	1.6	99.04	60	120	
115	In	H2	1387316.51	1367858.24	0.8	98.6	60	120	
115	In	He	249482.25	237276.73	1.0	95.11	60	120	
159	Tb	NoGas	2793439.75	3067385.57	0.9	109.81	60	120	
209	Bi	NoGas	2683555.24	2631007.32	1.1	98.04	60	120	

Sample Name L34446-07MSD

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:36:29 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	29593.931	58.03	ppb	1.5	200	
11	B	6	NoGas	22824.181	44.75	ppb	0.8	20	OCAL
27	Al	72	NoGas	10770983.923	21119.58	ppb	1.9	1000	OCAL
51	V	45	He	28537.187	55.96	ppb	1.0	200	
52	Cr	45	He	27157.966	53.25	ppb	0.7	200	
55	Mn	72	NoGas	13252931.525	25986.14	ppb	1.4	200	OCAL
56	Fe	45	H2	27293309.199	53516.29	ppb	0.2	1000	OCAL
59	Co	72	NoGas	42594.774	83.52	ppb	1.6	200	
60	Ni	45	He	51857.972	101.68	ppb	0.7	500	
63	Cu	45	He	37079.346	72.7	ppb	0.6	500	
66	Zn	72	NoGas	169958.823	333.25	ppb	1.4	1000	
75	As	115	He	41913.594	82.18	ppb	1.1	200	
78	Se	115	H2	13831.820	27.12	ppb	1.1	500	
98	Mo	115	NoGas	25692.133	50.38	ppb	1.8	200	
107	Ag	115	NoGas	5439.671	10.67	ppb	0.7	50	
111	Cd	115	NoGas	27617.410	54.15	ppb	1.6	200	
118	Sn	115	NoGas	23056.339	45.21	ppb	1.9	200	
121	Sb	115	NoGas	1276.933	2.5	ppb	0.3	25	
125	Te	115	NoGas	12590.863	24.69	ppb	0.1	200	
133	Cs	115	NoGas	13864.496	27.18	ppb	1.3	200	
137	Ba	115	NoGas	597751.297	1172.06	ppb	1.9	500	OCAL
205	Tl	209	NoGas	27828.262	54.56	ppb	1.6	200	
208	Pb	209	NoGas	60787.238	119.19	ppb	1.9	500	
232	Th	209	NoGas	18921.399	37.1	ppb	2.0	200	
238	U	209	NoGas	15762.404	30.91	ppb	2.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	409660.86	10.5	93.2	60	120	
45	Sc	NoGas	2606081.08	4100559.28	8.5	157.35	60	120	FAIL
45	Sc	H2	614754.01	906608.30	0.5	147.47	60	120	FAIL
45	Sc	He	79590.76	115188.81	0.7	144.73	60	120	FAIL
72	Ge	NoGas	673042.21	744887.37	10.6	110.67	60	120	
72	Ge	H2	217511.55	209771.10	1.1	96.44	60	120	
72	Ge	He	62823.63	63968.75	1.1	101.82	60	120	
115	In	NoGas	2281326.88	2186962.05	14.1	95.86	60	120	
115	In	H2	1387316.51	1354856.19	0.5	97.66	60	120	
115	In	He	249482.25	233859.95	1.4	93.74	60	120	
159	Tb	NoGas	2793439.75	2982201.13	12.2	106.76	60	120	
209	Bi	NoGas	2683555.24	2561943.65	12.9	95.47	60	120	

Sample Name L34446-08

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:38:31 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	886.179	1.76	ppb	2.0	200	
11	B	6	NoGas	15378.598	30.45	ppb	0.9	20	OCAL
27	Al	72	NoGas	17520819.238	34694.69	ppb	0.8	1000	OCAL
51	V	45	He	18615.963	36.86	ppb	0.3	200	
52	Cr	45	He	17114.709	33.89	ppb	0.8	200	
55	Mn	72	NoGas	2022730.507	4005.41	ppb	0.7	200	OCAL
56	Fe	45	H2	19155374.460	37931.44	ppb	0.3	1000	OCAL
59	Co	72	NoGas	11702.135	23.17	ppb	0.6	200	
60	Ni	45	He	17366.511	34.39	ppb	0.8	500	
63	Cu	45	He	21536.030	42.65	ppb	0.6	500	
66	Zn	72	NoGas	97665.588	193.4	ppb	1.0	1000	
75	As	115	He	6815.669	13.5	ppb	3.7	200	
78	Se	115	H2	94.986	0.19	ppb	1.4	500	
98	Mo	115	NoGas	259.909	0.52	ppb	0.9	200	
107	Ag	115	NoGas	82.351	0.16	ppb	0.3	50	
111	Cd	115	NoGas	635.208	1.26	ppb	2.1	200	
118	Sn	115	NoGas	3807.191	7.54	ppb	0.6	200	
121	Sb	115	NoGas	137.522	0.27	ppb	1.2	25	
125	Te	115	NoGas	36.618	0.07	ppb	10.8	200	
133	Cs	115	NoGas	3246.290	6.43	ppb	0.5	200	
137	Ba	115	NoGas	115926.840	229.56	ppb	0.2	500	
205	Tl	209	NoGas	199.729	0.4	ppb	3.5	200	
208	Pb	209	NoGas	20890.900	41.37	ppb	0.7	500	
232	Th	209	NoGas	5450.474	10.79	ppb	0.7	200	
238	U	209	NoGas	581.263	1.15	ppb	0.4	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	508603.80	0.3	115.7	60	120	
45	Sc	NoGas	2606081.08	3856658.32	1.1	147.99	60	120	FAIL
45	Sc	H2	614754.01	849635.80	0.2	138.21	60	120	FAIL
45	Sc	He	79590.76	107472.38	0.6	135.03	60	120	FAIL
72	Ge	NoGas	673042.21	719190.89	0.7	106.86	60	120	
72	Ge	H2	217511.55	205626.44	0.7	94.54	60	120	
72	Ge	He	62823.63	62219.86	0.7	99.04	60	120	
115	In	NoGas	2281326.88	2215054.08	0.7	97.09	60	120	
115	In	H2	1387316.51	1310749.39	0.7	94.48	60	120	
115	In	He	249482.25	226062.19	0.4	90.61	60	120	
159	Tb	NoGas	2793439.75	2970023.49	1.1	106.32	60	120	
209	Bi	NoGas	2683555.24	2565092.88	1.1	95.59	60	120	

Sample Name	CCV
File Name	034_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:40:34 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	106.315	0.7	100	106.32	
11	B	6	NoGas	10.739	1.2	10	107.39	
27	Al	72	NoGas	506.314	1.0	500	101.26	
51	V	45	He	99.604	1.0	100	99.6	
52	Cr	45	He	99.950	0.9	100	99.95	
55	Mn	72	NoGas	101.718	1.2	100	101.72	
56	Fe	45	H2	503.130	1.5	500	100.63	
59	Co	72	NoGas	101.461	0.8	100	101.46	
60	Ni	45	He	250.079	0.8	250	100.03	
63	Cu	45	He	252.315	1.1	250	100.93	
66	Zn	72	NoGas	507.456	0.7	500	101.49	
75	As	115	He	100.978	1.1	100	100.98	
78	Se	115	H2	246.283	1.1	250	98.51	
98	Mo	115	NoGas	100.004	1.0	100	100	
107	Ag	115	NoGas	25.193	1.5	25	100.77	
111	Cd	115	NoGas	97.837	0.8	100	97.84	
118	Sn	115	NoGas	98.932	1.4	100	98.93	
121	Sb	115	NoGas	12.257	1.2	12.5	98.06	
125	Te	115	NoGas	97.731	1.3	100	97.73	
133	Cs	115	NoGas	99.477	1.4	100	99.48	
137	Ba	115	NoGas	250.141	0.8	250	100.06	
205	Tl	209	NoGas	101.322	0.6	100	101.32	
208	Pb	209	NoGas	254.395	0.9	250	101.76	
232	Th	209	NoGas	102.585	0.8	100	102.58	
238	U	209	NoGas	101.924	1.1	100	101.92	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	439573.77	411802.30	0.5	93.68	60	120	
Sc	45	NoGas	2606081.08	2707656.49	0.4	103.9	60	120	
Sc	45	H2	614754.01	622707.73	1.2	101.29	60	120	
Sc	45	He	79590.76	79664.39	1.3	100.09	60	120	
Ge	72	NoGas	673042.21	700368.71	0.8	104.06	60	120	
Ge	72	H2	217511.55	221556.13	0.5	101.86	60	120	
Ge	72	He	62823.63	62505.57	0.7	99.49	60	120	
In	115	NoGas	2281326.88	2353173.75	0.4	103.15	60	120	
In	115	H2	1387316.51	1455706.05	0.6	104.93	60	120	
In	115	He	249482.25	251524.44	1.2	100.82	60	120	
Tb	159	NoGas	2793439.75	2889919.54	0.4	103.45	60	120	
Bi	209	NoGas	2683555.24	2893068.84	0.9	107.81	60	120	

Sample Name	CCB
File Name	035_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:42:29 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.079	17.5	0.15	
11	B	6	NoGas	0.231	25.6	1.5	
27	Al	72	NoGas	0.326	12.8	3	
51	V	45	He	-0.706	N/A	0.6	
52	Cr	45	He	0.006	55.1	1.5	
55	Mn	72	NoGas	0.368	5.3	1.5	
59	Co	72	NoGas	0.014	21.3	0.15	
60	Ni	45	He	0.026	32.4	1.8	
63	Cu	45	He	-0.047	N/A	1.5	
66	Zn	72	NoGas	0.144	36.7	6	
75	As	115	He	0.041	42.9	0.6	
78	Se	115	H2	0.017	76.9	0.3	
107	Ag	115	NoGas	0.004	37.6	0.15	
111	Cd	115	NoGas	0.010	66.9	0.3	
118	Sn	115	NoGas	0.024	15.5	0.3	
121	Sb	115	NoGas	0.027	19.5	1.2	
125	Te	115	NoGas	0.007	120.8	3	
133	Cs	115	NoGas	0.018	27.4	0.6	
137	Ba	115	NoGas	0.037	30.6	1.5	
205	Tl	209	NoGas	0.031	27.0	0.3	
208	Pb	209	NoGas	0.058	29.4	0.3	
232	Th	209	NoGas	0.020	22.9	3	
238	U	209	NoGas	0.013	35.1	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	411298.99	0.6	93.57	60	120	
45	Sc	NoGas	2606081.08	2666240.17	0.5	102.31	60	120	
45	Sc	H2	614754.01	619648.95	0.5	100.8	60	120	
45	Sc	He	79590.76	79396.31	0.4	99.76	60	120	
72	Ge	NoGas	673042.21	691100.96	0.1	102.68	60	120	
72	Ge	H2	217511.55	220990.89	0.8	101.6	60	120	
72	Ge	He	62823.63	62122.78	0.5	98.88	60	120	
115	In	NoGas	2281326.88	2330419.95	0.5	102.15	60	120	
115	In	H2	1387316.51	1411682.51	1.2	101.76	60	120	
115	In	He	249482.25	244235.33	0.3	97.9	60	120	
159	Tb	NoGas	2793439.75	2810291.97	0.5	100.6	60	120	
209	Bi	NoGas	2683555.24	2729214.06	1.0	101.7	60	120	

Sample Name L34446-09

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:44:25 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	984.572	1.95	ppb	0.4	200	
11	B	6	NoGas	14693.198	29.1	ppb	0.9	20	OCAL
27	Al	72	NoGas	16932050.563	33528.81	ppb	0.6	1000	OCAL
51	V	45	He	17729.433	35.11	ppb	0.7	200	
52	Cr	45	He	18550.574	36.73	ppb	0.0	200	
55	Mn	72	NoGas	2374682.579	4702.34	ppb	0.7	200	OCAL
56	Fe	45	H2	20069692.197	39741.96	ppb	0.2	1000	OCAL
59	Co	72	NoGas	14826.550	29.36	ppb	0.5	200	
60	Ni	45	He	22490.787	44.54	ppb	0.1	500	
63	Cu	45	He	23928.737	47.38	ppb	1.2	500	
66	Zn	72	NoGas	117363.886	232.4	ppb	0.3	1000	
75	As	115	He	7280.087	14.42	ppb	1.1	200	
78	Se	115	H2	576.500	1.14	ppb	2.4	500	
98	Mo	115	NoGas	933.642	1.85	ppb	0.4	200	
107	Ag	115	NoGas	218.744	0.43	ppb	2.0	50	
111	Cd	115	NoGas	1410.442	2.79	ppb	3.3	200	
118	Sn	115	NoGas	3855.453	7.64	ppb	1.2	200	
121	Sb	115	NoGas	198.955	0.39	ppb	1.5	25	
125	Te	115	NoGas	40.098	0.08	ppb	13.6	200	
133	Cs	115	NoGas	2905.433	5.75	ppb	0.6	200	
137	Ba	115	NoGas	95217.330	188.55	ppb	1.0	500	
205	Tl	209	NoGas	225.013	0.45	ppb	3.9	200	
208	Pb	209	NoGas	27345.862	54.15	ppb	0.6	500	
232	Th	209	NoGas	5041.243	9.98	ppb	0.6	200	
238	U	209	NoGas	1267.512	2.51	ppb	1.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	514333.02	0.7	117.01	60	120	
45	Sc	NoGas	2606081.08	3821173.46	0.2	146.63	60	120	FAIL
45	Sc	H2	614754.01	845352.71	0.3	137.51	60	120	FAIL
45	Sc	He	79590.76	107222.81	0.8	134.72	60	120	FAIL
72	Ge	NoGas	673042.21	721344.56	0.3	107.18	60	120	
72	Ge	H2	217511.55	205923.14	0.6	94.67	60	120	
72	Ge	He	62823.63	62340.38	0.2	99.23	60	120	
115	In	NoGas	2281326.88	2181140.14	0.6	95.61	60	120	
115	In	H2	1387316.51	1315716.06	0.5	94.84	60	120	
115	In	He	249482.25	226631.52	0.3	90.84	60	120	
159	Tb	NoGas	2793439.75	2948137.52	1.3	105.54	60	120	
209	Bi	NoGas	2683555.24	2550136.91	0.4	95.03	60	120	

Sample Name L34446-09SDL

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415985.b

Acq Time 1/10/2017 8:46:28 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	243.883	0.48	ppb	3.8	200	
11	B	6	NoGas	3666.256	7.26	ppb	0.4	20	
27	Al	72	NoGas	3565751.147	7060.89	ppb	0.6	1000	OCAL
51	V	45	He	4328.278	8.57	ppb	1.6	200	
52	Cr	45	He	4868.877	9.64	ppb	0.8	200	
55	Mn	72	NoGas	509680.067	1009.27	ppb	0.8	200	OCAL
56	Fe	45	H2	5361156.066	10616.15	ppb	0.3	1000	OCAL
59	Co	72	NoGas	3150.153	6.24	ppb	0.7	200	
60	Ni	45	He	6131.476	12.14	ppb	2.0	500	
63	Cu	45	He	6323.416	12.52	ppb	1.4	500	
66	Zn	72	NoGas	24788.624	49.09	ppb	0.2	1000	
75	As	115	He	1422.309	2.82	ppb	4.3	200	
78	Se	115	H2	96.528	0.19	ppb	3.9	500	
98	Mo	115	NoGas	177.315	0.35	ppb	2.3	200	
107	Ag	115	NoGas	43.002	0.08	ppb	3.4	50	
111	Cd	115	NoGas	271.612	0.54	ppb	6.7	200	
118	Sn	115	NoGas	516.559	1.02	ppb	0.9	200	
121	Sb	115	NoGas	30.650	0.06	ppb	4.8	25	
125	Te	115	NoGas	3.451	0.01	ppb	12.2	200	
133	Cs	115	NoGas	572.913	1.13	ppb	0.8	200	
137	Ba	115	NoGas	18687.880	37.01	ppb	0.8	500	
205	Tl	209	NoGas	44.733	0.09	ppb	2.3	200	
208	Pb	209	NoGas	5367.484	10.63	ppb	0.8	500	
232	Th	209	NoGas	971.806	1.92	ppb	0.7	200	
238	U	209	NoGas	243.590	0.48	ppb	1.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	428833.97	0.3	97.56	60	120	
45	Sc	NoGas	2606081.08	2916035.79	0.5	111.89	60	120	
45	Sc	H2	614754.01	671202.21	0.5	109.18	60	120	
45	Sc	He	79590.76	86409.46	0.6	108.57	60	120	
72	Ge	NoGas	673042.21	701989.99	0.3	104.3	60	120	
72	Ge	H2	217511.55	219943.11	0.2	101.12	60	120	
72	Ge	He	62823.63	63666.26	0.7	101.34	60	120	
115	In	NoGas	2281326.88	2324122.68	1.2	101.88	60	120	
115	In	H2	1387316.51	1406381.82	0.4	101.37	60	120	
115	In	He	249482.25	244775.88	1.5	98.11	60	120	
159	Tb	NoGas	2793439.75	2921485.44	1.0	104.58	60	120	
209	Bi	NoGas	2683555.24	2721474.82	0.4	101.41	60	120	

Sample Name	CCV
File Name	038_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:48:28 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	106.384	0.2	100	106.38	
11	B	6	NoGas	10.446	0.1	10	104.46	
27	Al	72	NoGas	499.562	0.8	500	99.91	
51	V	45	He	101.959	0.8	100	101.96	
52	Cr	45	He	102.425	0.7	100	102.42	
55	Mn	72	NoGas	101.472	0.9	100	101.47	
56	Fe	45	H2	512.076	0.9	500	102.42	
59	Co	72	NoGas	101.711	1.0	100	101.71	
60	Ni	45	He	256.723	0.7	250	102.69	
63	Cu	45	He	257.268	0.9	250	102.91	
66	Zn	72	NoGas	508.526	1.1	500	101.71	
75	As	115	He	104.615	0.8	100	104.62	
78	Se	115	H2	252.714	1.3	250	101.09	
98	Mo	115	NoGas	100.963	0.6	100	100.96	
107	Ag	115	NoGas	25.432	0.6	25	101.73	
111	Cd	115	NoGas	100.111	0.9	100	100.11	
118	Sn	115	NoGas	99.967	0.8	100	99.97	
121	Sb	115	NoGas	12.542	0.7	12.5	100.34	
125	Te	115	NoGas	100.131	0.3	100	100.13	
133	Cs	115	NoGas	100.717	0.6	100	100.72	
137	Ba	115	NoGas	252.357	0.3	250	100.94	
205	Tl	209	NoGas	102.162	1.0	100	102.16	
208	Pb	209	NoGas	257.465	0.8	250	102.99	
232	Th	209	NoGas	102.957	0.5	100	102.96	
238	U	209	NoGas	102.952	0.5	100	102.95	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	439573.77	404876.83	0.2	92.11	60	120	
Sc	45	NoGas	2606081.08	2658772.46	0.5	102.02	60	120	
Sc	45	H2	614754.01	616787.80	0.6	100.33	60	120	
Sc	45	He	79590.76	79504.77	0.7	99.89	60	120	
Ge	72	NoGas	673042.21	694510.16	0.6	103.19	60	120	
Ge	72	H2	217511.55	220422.52	0.5	101.34	60	120	
Ge	72	He	62823.63	62630.67	0.9	99.69	60	120	
In	115	NoGas	2281326.88	2320905.19	0.5	101.73	60	120	
In	115	H2	1387316.51	1455244.39	0.6	104.9	60	120	
In	115	He	249482.25	254082.32	0.3	101.84	60	120	
Tb	159	NoGas	2793439.75	2841278.15	0.8	101.71	60	120	
Bi	209	NoGas	2683555.24	2841571.69	0.2	105.89	60	120	

Sample Name	CCB
File Name	039_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415985.b
Acq Time	1/10/2017 8:50:23 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.079	30.9	0.15	
11	B	6	NoGas	-0.061	N/A	1.5	
27	Al	72	NoGas	0.304	59.8	3	
51	V	45	He	-0.741	N/A	0.6	
52	Cr	45	He	0.013	7.6	1.5	
55	Mn	72	NoGas	0.174	4.3	1.5	
59	Co	72	NoGas	0.013	34.0	0.15	
60	Ni	45	He	0.028	23.3	1.8	
63	Cu	45	He	-0.021	N/A	1.5	
66	Zn	72	NoGas	0.155	42.9	6	
75	As	115	He	-0.174	N/A	0.6	
78	Se	115	H2	0.094	6.2	0.3	
107	Ag	115	NoGas	0.007	12.5	0.15	
111	Cd	115	NoGas	0.013	59.9	0.3	
118	Sn	115	NoGas	0.027	59.3	0.3	
121	Sb	115	NoGas	0.033	23.6	1.2	
125	Te	115	NoGas	0.047	55.0	3	
133	Cs	115	NoGas	0.018	28.0	0.6	
137	Ba	115	NoGas	0.032	45.9	1.5	
205	Tl	209	NoGas	0.033	26.6	0.3	
208	Pb	209	NoGas	0.064	33.1	0.3	
232	Th	209	NoGas	0.021	27.8	3	
238	U	209	NoGas	0.014	36.3	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	439573.77	403573.95	0.3	91.81	60	120	
45	Sc	NoGas	2606081.08	2641048.09	0.4	101.34	60	120	
45	Sc	H2	614754.01	619312.13	0.6	100.74	60	120	
45	Sc	He	79590.76	79327.07	0.2	99.67	60	120	
72	Ge	NoGas	673042.21	689451.38	0.6	102.44	60	120	
72	Ge	H2	217511.55	220915.91	0.7	101.57	60	120	
72	Ge	He	62823.63	62276.85	0.8	99.13	60	120	
115	In	NoGas	2281326.88	2325563.54	0.6	101.94	60	120	
115	In	H2	1387316.51	1425966.30	0.4	102.79	60	120	
115	In	He	249482.25	247352.43	1.5	99.15	60	120	
159	Tb	NoGas	2793439.75	2795316.42	1.2	100.07	60	120	
209	Bi	NoGas	2683555.24	2716512.46	0.4	101.23	60	120	

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415785

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:11
Start Date/Time: 01/06/2017 10:00
End Date/Time: 01/10/2017 13:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
1	WG415785PBS	NONE	<2000		01/06/17 10:00	0	7.5	5	5	50			1.308	7.328	1.308	.00	100	
2	WG415785LCSS1	PCN52516	<2000		01/06/17 14:44	0.5	7.5	5	5	50		100					100	
3	WG415785LCSSD1	PCN52516	<2000		01/06/17 19:28	0.5	7.5	5	5	50		100					100	
4	WG415785LCSS2	PCN52708	<2000		01/07/17 0:12	0.5	7.5	5	5	50		100					100	
5	WG415785LCSSD2	PCN52708	<2000		01/07/17 4:57	0.5	7.5	5	5	50		100					100	
6	L34445-01	TP-6_7_9 (2-5)	<2000		01/07/17 9:41	0.5	7.5	5	5	50			1.311	7.362	7.282	98.68	101	
7	L34445-02	TP-12 (2-4)	<2000		01/07/17 14:25	0.5	7.5	5	5	50			1.305	7.369	7.288	98.66	101	
8	L34445-03	TP-15_16 (2-13)	<2000		01/07/17 19:09	0.5	7.5	5	5	50			1.301	7.338	7.27	98.87	101	
9	L34445-04	TP-20 (1-4)	<2000		01/07/17 23:54	0.5	7.5	5	5	50			1.299	7.412	7.32	98.50	102	
10	L34445-04MS	II161222-8	<2000		01/08/17 4:38	0.5	7.5	5	5	50	0.5	98.5	1.298	7.463	7.376	98.59	102	
11	L34445-04MSD	II161222-8	<2000		01/08/17 9:22	0.5	7.5	5	5	50	0.5	98.5					102	
12	L34446-01	SB-01_02GT (1.5-6.5)	<2000		01/08/17 14:07	0.5	7.5	5	5	50			1.299	7.209	7.093	98.04	102	
13	L34446-02	SB-07GT (4-21)	<2000		01/08/17 18:51	0.5	7.5	5	5	50			1.297	7.296	7.257	99.35	101	
14	L34446-03	SB-03_TP-3 (1-5)	<2000		01/08/17 23:35	0.5	7.5	5	5	50			1.303	7.31	7.053	95.72	104	
15	L34446-04	TP-6 (7-10)	<2000		01/09/17 4:19	0.5	7.5	5	5	50			1.307	7.126	7.025	98.26	102	
16	L34446-05	TP-8 (3.5-13)	<2000		01/09/17 9:04	0.5	7.5	5	5	50			1.311	7.856	7.776	98.78	101	
17	L34446-06	TP-9 (7-14)	<2000		01/09/17 13:48	0.5	7.5	5	5	50			1.307	7.175	7.117	99.01	101	
18	L34446-07	TP-12 (7-9)	<2000		01/09/17 18:32	0.5	7.5	5	5	50			1.308	7.17	7.07	98.29	102	
19	L34446-07MS	MS161205-2	<2000		01/09/17 23:17	0.5	7.5	5	5	50	0.25	98.29					102	
20	L34446-07MSD	MS161205-2	<2000		01/10/17 4:01	0.5	7.5	5	5	50	0.25	98.29					102	
21	L34446-08	TP-14 (3-7)	<2000		01/10/17 8:45	0.5	7.5	5	5	50			1.301	7.549	7.48	98.90	101	

Report Comments: _____

Internal Comments _____

AREV: BCC 1.10.17
Initials, Date

SREV: FRD 1/12/17
Initials, Date

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415785

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:11
Start Date/Time: 01/06/2017 10:00
End Date/Time: 01/10/2017 13:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
22	L34446-09	TP-20 (12-14)	<2000		01/10/17 13:29	0.5	7.5	5	5	50			1.299	7.932	7.865	98.99	101	

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34445-04MS	ICP Spike
L34445-04MSD	ICP Spike
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-07MS	ICPMS Spike
L34446-07MSD	ICPMS Spike
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-10-17

Approved: BPD
Date: 1/12/17

Analyst: BCC

Workgroup: 415785

Analysis Date: 116 · 1/10/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?	X		
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
50 mL Digestion Tubes	1512329-6C-6253-QD	
HNO3	52065	6-24-18
H2O2	52628 ; 52627	9-30-18
HCl	52599	5-13-19

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSQ010.07.14.08

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415785

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:11
Start Date/Time: 1/6/17 10:00
End Date/Time: 1/10/17 1:30p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
1	WG415785PBS	NONE				0	7.5	5	5	50			1.308	7.328	1.308			
2	WG415785LCSS1	PCN52516				0.500												
3	WG415785LCSSD1	PCN52516				0.500												
4	WG415785LCSS2	PCN52708				0.500												
5	WG415785LCSSD2	PCN52708				0.500							1.611	7.362				
6	L34445-01	TP-6_7_9 (2-5)	<2000			0.500							1.311	~~7.632~~	7.282			
7	L34445-02	TP-12 (2-4)				0.500							1.305	7.369	7.288			
8	L34445-03	TP-15_16 (2-13)				0.500							1.301	7.338	7.270			
9	L34445-04	TP-20 (1-4)				0.500							1.299	7.412	7.320			
10	L34445-04MS	II161222-8				0.500					0.500		1.298	7.463	~~7.376~~	7.316	1/6/17	AD QC
11	L34445-04MSD	II161222-8				0.500					0.500							
12	L34446-01	SB-01_02GT (1.5-6.5)				0.500							1.299	7.209	7.093			
13	L34446-02	SB-07GT (4-21)				0.500							1.297	7.296	7.257			
14	L34446-03	SB-03_TP-3 (1-5)				0.500							1.303	7.310	7.053			
15	L34446-04	TP-6 (7-10)				0.500							1.307	7.126	7.025			
16	L34446-05	TP-8 (3.5-13)				0.500							1.311	7.552	7.776			
17	L34446-06	TP-9 (7-14)				0.500							1.307	7.175	7.117			
18	L34446-07	TP-12 (7-9)				0.500							1.308	7.170	7.070			
19	L34446-07MS	MS161205-2				0.500					0.250							
20	L34446-07MSD	MS161205-2				0.500					0.250							
21	L34446-08	TP-14 (3-7)				0.500							1.361	7.549	7.480			

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415785

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/06/2017 9:11
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
22	L34446-09	TP-20 (12-14)	L2000			0.520	7.5	5	5	50			1.299	7.932	7.865			

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34445-04MS	ICP Spike
L34445-04MSD	ICP Spike
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-07MS	ICPMS Spike
L34446-07MSD	ICPMS Spike
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415785

Date Reported: 12-Jan-17
Run ID: R1491203
Date Analyzed: 06-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

WG415785PBS

Tag:

Measured: 1/6/2017 10:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	PREP	0	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	1.308	100		g	++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	7.328	100		g	++					
SREV	PAN WEIGHT	PREP	1.308	100		g	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	100		g	++					

WG415785LCSS1

Tag:

Measured: 1/6/2017 2:44:17 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415785LCSSD

Tag:

Measured: 1/6/2017 7:28:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415785LCSS2

Tag:

Measured: 1/7/2017 12:12:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415785LCSSD

Tag:

Measured: 1/7/2017 4:57:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

L34445-01

Tag:

Measured: 1/7/2017 9:41:25 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.68	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.282	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.362	101		g	++					
SREV	PAN WEIGHT	X-3050	1.311	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34445-02

Tag:

Measured: 1/7/2017 2:25:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.66	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.288	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.369	101		g	++					
SREV	PAN WEIGHT	X-3050	1.305	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34445-03

Tag:

Measured: 1/7/2017 7:09:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.87	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.27	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.338	101		g	++					
SREV	PAN WEIGHT	X-3050	1.301	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34445-04

Tag:

Measured: 1/7/2017 11:54:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.5	102		%	++					
SREV	DILUTION	X-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.32	102		g	++					
SREV	H2O2	X-3050	5	102		mL	++					
SREV	HCL	X-3050	5	102		mL	++					
SREV	HNO3	X-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.412	102		g	++					
SREV	PAN WEIGHT	X-3050	1.299	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	102		g	++					

L34445-04MS

Tag:

Measured: 1/8/2017 4:38:33 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.5	102		%	++					
SREV	AIR DRY SOLIDS	PREP	98.59	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	7.376	102		g	++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	7.463	102		g	++					
SREV	PAN WEIGHT	PREP	1.298	102		g	++					
SREV	SCN VOLUME	PREP	0.5	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34445-04MSD

Tag:

Measured: 1/8/2017 9:22:50 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.5	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.5	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34446-01

Tag:

Measured: 1/8/2017 2:07:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.04	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.093	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.209	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.299	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L34446-02

Tag:

Measured: 1/8/2017 6:51:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.35	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.257	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.296	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.297	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34446-03

Tag:

Measured: 1/8/2017 11:35:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	95.72	104		%	++					
SREV	DILUTION	X-MS-3050	104	104			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.053	104		g	++					
SREV	H2O2	X-MS-3050	5	104		mL	++					
SREV	HCL	X-MS-3050	5	104		mL	++					
SREV	HNO3	X-MS-3050	7.5	104		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.31	104		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.303	104		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	104		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	104		g	++					

L34446-04

Tag:

Measured: 1/9/2017 4:19:58 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.26	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.025	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.126	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.307	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L34446-05

Tag:

Measured: 1/9/2017 9:04:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.78	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.776	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.856	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.311	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34446-06

Tag:

Measured: 1/9/2017 1:48:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.01	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.117	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.175	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.307	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34446-07

Tag:

Measured: 1/9/2017 6:32:49 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.29	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.07	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.17	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.308	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L34446-07MS

Tag:

Measured: 1/9/2017 11:17:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.29	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.25	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34446-07MSD

Tag:

Measured: 1/10/2017 4:01:23 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.29	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.25	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34446-08

Tag:

Measured: 1/10/2017 8:45:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.9	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.48	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.549	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.301	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34446-09 **Tag:** **Measured:** **1/10/2017 1:29:57 PM**

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.99	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.865	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.932	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.299	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416048

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/11/2017 15:27
Start Date/Time: 01/11/2017 10:00
End Date/Time: 01/11/2017 17:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG416048CSTD1	NONE	<250		01/11/17 10:00		10.08							
2	WG416048CSTD2	NONE	<250		01/11/17 10:22		7.01							
3	WG416048CSTD3	NONE	<250		01/11/17 10:44		2.05							
4	WG416048ICV	PCN50759	<250		01/11/17 11:06		4.06							
5	WG416048PBS	NONE	<250		01/11/17 11:28		7	2	40	0.5	40	0.5	.00	
6	WG416048LCSS	PCN49919	<250		01/11/17 11:50		7	2	40	0.5	33.5	0.5	8.13	
7	L34446-01	SB-01_02GT (1.5-6.5)	<250		01/11/17 12:12	Moderate	7	2	40	0.5	32.2	0.5	9.75	
8	L34446-01MS	SI141024-2	<250		01/11/17 12:34	Moderate	7	2	40	0.5	29.9	0.5	12.63	
9	L34446-01DUP	NONE	<250		01/11/17 12:56	Moderate	7	2	40	0.5	32.1	0.5	9.88	
10	L34446-03	SB-03_TP-3 (1-5)	<250		01/11/17 13:18	Moderate	7	2	40	0.5	27.1	0.5	16.13	
11	L34446-05	TP-8 (3.5-13)	<250		01/11/17 13:41	Moderate	7	2	40	0.5	26.4	0.5	17.00	
12	L34446-06	TP-9 (7-14)	<250		01/11/17 14:03	Moderate	7	2	40	0.5	26.5	0.5	16.88	
13	L34446-07	TP-12 (7-9)	<250		01/11/17 14:25	Moderate	7	2	40	0.5	25.6	0.5	18.00	
14	L34446-08	TP-14 (3-7)	<250		01/11/17 14:47	Moderate	7	2	40	0.5	17	0.5	28.75	
15	WG416048CCV1	PCN50759	<250		01/11/17 15:09		4.08							
16	L34446-09	TP-20 (12-14)	<250		01/11/17 15:31	Moderate	7	2	40	0.5	22.3	0.5	22.13	
17	L34674-11	SB-01_02GT (1.5-6.5)	<250		01/11/17 15:53	Moderate	7	2	40	0.5	33.2	0.5	8.50	
18	L34674-12	TP-6 (7-10)-DUPLICAT	<250		01/11/17 16:15	Moderate	7	2	40	0.5	38.4	0.5	2.00	
19	L34674-13	TP-20 (12-14)-DUPLIC	<250		01/11/17 16:37	Moderate	7	2	40	0.5	21.4	0.5	23.25	
20	WG416048CCV2	PCN50759	<250		01/11/17 16:59		4.07							

Report Comments: _____

Internal Comments _____

AREV: BCC 1.11.17
Initials, Date

SREV: JRD 1/12/17
Initials, Date

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416048

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/11/2017 15:27
Start Date/Time: 01/11/2017 10:00
End Date/Time: 01/11/2017 17:00

Sample	Login Comments
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-11-17

Approved: BCD
Date: 1/12/17

Analyst: BCC

Workgroup: 416048

Analysis Date: 1/11/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)? BCC 1.11.17	X		X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
0.1 N HCl	50296	5-31-17
0.1 N NaOH	50283	9-30-17
Buffer 2		
Buffer 7		
Buffer 10		

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.07.14.08

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416048

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: Bcc
ACZ Dept: 25
Create Date: 01/11/2017 15:27
Start Date/Time: 1/11/17 10:00a
End Date/Time: 1/11/17 5:00p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG416048CSTD1	NONE					10.08				Bcc 1/11/17			
2	WG416048CSTD2	NONE					7.01							
3	WG416048CSTD3	NONE					2.05							
4	WG416048ICV	PCN50759					4.06							
5	WG416048PBS	NONE					7	2.000	40	0.5	40	0.5		
6	WG416048LCSS	PCN49919									33.5			
7	L34446-01	SB-01_02GT (1.5-6.5)	<250			MOD					~~32.4~~ 32.2			
8	L34446-01MS	SI141024-2									29.9			
9	L34446-01DUP	NONE									32.1			
10	L34446-03	SB-03_TP-3 (1-5)									27.1			
11	L34446-05	TP-8 (3.5-13)									26.4			
12	L34446-06	TP-9 (7-14)									26.5			
13	L34446-07	TP-12 (7-9)									25.6			
14	L34446-08	TP-14 (3-7)									17.0			
15	WG416048CCV1	PCN50759					4.08							
16	L34446-09	TP-20 (12-14)	<250			MOD	7	2.000	40	0.5	22.3	0.5		
17	L34674-11	SB-01_02GT (1.5-6.5)									33.2			
18	L34674-12	TP-6 (7-10)-DUPLICAT									38.4			
19	L34674-13	TP-20 (12-14)-DUPLIC									21.4			
20	WG416048CCV2	PCN50759					4.07							

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416048

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/11/2017 15:27
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

L34446-1701191414

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416048

Date Reported: 12-Jan-17
Run ID: R1491682
Date Analyzed: 11-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

WG416048ICV

Tag:

Measured: 1/11/2017 11:06:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.06	1		units	++	0.1	0.1			
SREV	PH	REC	102	1		%	++	0.1	0.1			

WG416048PBS

Tag:

Measured: 1/11/2017 11:28:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND		1	U	%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	40	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

WG416048LCSS

Tag:

Measured: 1/11/2017 11:50:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	8.13	1		%	++	0.1	0.5			
SREV	CACO3	REC	113	1		%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	33.5	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-01

Tag:

Measured: 1/11/2017 12:12:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	9.8	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	32.2	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-01MS

Tag: Measured: 1/11/2017 12:34:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	12.63	1		%	++	0.1	0.5			
SREV	CACO3	REC	94	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Moderate		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	29.9	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-01DUP

Tag: Measured: 1/11/2017 12:56:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	9.88	1		%	++	0.1	0.5			
SREV	CACO3	RPD	1	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Moderate		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	32.1	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-03

Tag: Measured: 1/11/2017 1:18:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	16.1	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	27.1	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-05

Tag: Measured: 1/11/2017 1:41:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	17.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	26.4	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-06

Tag: Measured: 1/11/2017 2:03:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	16.9	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	26.5	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-07

Tag: Measured: 1/11/2017 2:25:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	18.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	25.6	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-08

Tag: Measured: 1/11/2017 2:47:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	28.8	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	17	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

WG416048CCV1

Tag: Measured: 1/11/2017 3:09:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.08	1		units	++	0.1	0.1			
SREV	PH	REC	102	1		%	++	0.1	0.1			

L34446-09

Tag: Measured: 1/11/2017 3:31:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	22.1	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	22.3	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34674-11

Tag: Measured: 1/11/2017 3:53:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	8.5	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	33.2	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34674-12

Tag: Measured: 1/11/2017 4:15:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	2.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	38.4	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34674-13

Tag: Measured: 1/11/2017 4:37:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	23.3	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	21.4	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

WG416048CCV2

Tag: Measured: 1/11/2017 4:59:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.07	1		units	++	0.1	0.1			
SREV	PH	REC	102	1		%	++	0.1	0.1			

Neutralization Potential

WG416091

ACZ Laboratories, Inc

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

Instrument ID: SOILS
Analyst: BC
ACZ Dept: 25
Create Date: 01/12/2017 10:09
Start Date/Time: 01/13/2017 9:00
End Date/Time: 01/13/2017 12:00

SE Q	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG416091CSTD1	NONE	<250		01/13/17 9:00		10.08							
2	WG416091CSTD2	NONE	<250		01/13/17 9:18		7.03							
3	WG416091CSTD3	NONE	<250		01/13/17 9:36		2.03							
4	WG416091ICV	PCN50759	<250		01/13/17 9:54		4							
5	WG416091PBS	NONE	<250		01/13/17 10:12		7	2	40	0.1	40	0.1	.00	
6	WG416091LCSS	PCN49912	<250		01/13/17 10:30		7	2	40	0.1	17.2	0.1	5.70	
7	L34446-02	SB-07GT (4-21)	<250		01/13/17 10:48	Slight	7	2	40	0.1	24.2	0.1	3.95	
8	L34446-02MS	SI141024-1	<250		01/13/17 11:06	Slight	7	2	40	0.1	21	0.1	4.75	
9	L34446-02DUP	NONE	<250		01/13/17 11:24	Slight	7	2	40	0.1	24.3	0.1	3.93	
10	L34446-04	TP-6 (7-10)	<250		01/13/17 11:42	Slight	7	2	40	0.1	27.2	0.1	3.20	
11	WG416091CCV	PCN50759	<250		01/13/17 12:00		4.01							

Sample	Login Comments
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: Bcc 1·13·17
Initials, Date

SREV: [illegible] 1/13/17
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-13-17

Approved: [signature]
Date: 1/13/17

Analyst: BCC

Workgroup: 416091

Analysis Date: 1/13/2017

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
0.1 N HCl	50296	8-31-17
0.1 N NaOH	50283	9-30-17
Buffer 2	50275	1-31-18
Buffer 7	49402	7-31-17
Buffer 10	51935	6-30-18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSQ010.07.14.08

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416091

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/12/2017 10:09
Start Date/Time: 1/13/17 9:00a
End Date/Time: 1/13/17 12:00p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG416091CSTD1	NONE					10.08							
2	WG416091CSTD2	NONE					7.03							
3	WG416091CSTD3	NONE					2.03							
4	WG416091ICV	PCN50759					4.00							
5	WG416091PBS	NONE					7	2.000	40.0	0.1	40.0	0.1		
6	WG416091LCSS	PCN49912						2.000			17.2			
7	L34446-02	SB-07GT (4-21)	<250			Slight		2.000			24.2			
8	L34446-02MS	SI141024-1						2.000			21.0			
9	L34446-02DUP	NONE						2.000			24.3			
10	L34446-04	TP-6 (7-10)						2.000			27.2			
11	WG416091CCV	PCN50759					4.01							

Sample	Login Comments
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416091

Date Reported:	13-Jan-17
Run ID:	R1492380
Date Analyzed:	13-Jan-17
ICAL Workgroup:	
Instrument ID:	SOILS

WG416091ICV

Tag: Measured: 1/13/2017 9:54:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

WG416091PBS

Tag: Measured: 1/13/2017 10:12:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND		1	U	%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.1	1		N	++					
SREV	NAOH	PREP	40	1		mL	++					
SREV	NAOH N	PREP	0.1	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

WG416091LCSS

Tag: Measured: 1/13/2017 10:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	5.7	1		%	++	0.1	0.5			
SREV	CACO3	REC	115	1		%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.1	1		N	++					
SREV	NAOH	PREP	17.2	1		mL	++					
SREV	NAOH N	PREP	0.1	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-02

Tag: Measured: 1/13/2017 10:48:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	4.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Slight	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.1	1		N	++				TB	
NEED	NAOH	PREP	24.2	1		mL	++				TB	
NEED	NAOH N	PREP	0.1	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-02MS

Tag: Measured: 1/13/2017 11:06:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	4.75	1		%	++	0.1	0.5			
SREV	CACO3	REC	75	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Slight		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.1	1		N	++					
SREV	NAOH	PREP	21	1		mL	++					
SREV	NAOH N	PREP	0.1	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-02DUP

Tag: Measured: 1/13/2017 11:24:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	3.93	1		%	++	0.1	0.5			
SREV	CACO3	RPD	2	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Slight		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.1	1		N	++					
SREV	NAOH	PREP	24.3	1		mL	++					
SREV	NAOH N	PREP	0.1	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-04

Tag: Measured: 1/13/2017 11:42:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	3.2	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Slight	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.1	1		N	++				TB	
NEED	NAOH	PREP	27.2	1		mL	++				TB	
NEED	NAOH N	PREP	0.1	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

WG416091CCV

Tag: Measured: 1/13/2017 12:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.01	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415419

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 12/29/2016 10:37
Start Date/Time: 12/29/2016 11:00
End Date/Time: 12/30/2016 11:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan And Sample Weight (g)	Dried Sample And Pan Weight (g)	Percent Solid (%)	Percent Moisture (%)	Comments
1	WG415419PBS	NONE	as rec		12/29/16 11:00	1.296	10.045	1.296	.00	100.00	
2	L34305-01	I-288C RUN 4 2+3	as rec		12/29/16 12:16	1.296	9.307	8.301	87.44	12.56	
3	L34305-01DUP	NONE	as rec		12/29/16 13:33	1.295	9.325	8.299	87.22	12.78	
4	L34305-02	CM2-7C RUN 3 SAMPLE	as rec		12/29/16 14:50	1.288	9.595	8.082	81.79	18.21	
5	L34305-03	CM3-2C RUN 3 SAMPLE	as rec		12/29/16 16:07	1.282	9.751	9.013	91.29	8.71	
6	L34305-04	CM6-5C RUN 6 SAMPLE	as rec		12/29/16 17:24	1.278	9.371	7.524	77.18	22.82	
7	L34425-01	4B 4 2.0	as rec		12/29/16 18:41	1.28	9.229	8.76	94.10	5.90	
8	L34445-01	TP-6_7_9 (2-5)	as rec		12/29/16 19:57	1.288	9.27	8.332	88.25	11.75	
9	L34445-02	TP-12 (2-4)	as rec		12/29/16 21:14	1.293	9.709	8.986	91.41	8.59	
10	L34445-03	TP-15_16 (2-13)	as rec		12/29/16 22:31	1.296	9.207	8.084	85.80	14.20	
11	L34445-04	TP-20 (1-4)	as rec		12/29/16 23:48	1.293	9.393	8.685	91.26	8.74	
12	L34446-01	SB-01_02GT (1.5-6.5)	as rec		12/30/16 1:05	1.294	9.634	8.458	85.90	14.10	
13	L34446-02	SB-07GT (4-21)	as rec		12/30/16 2:22	1.287	9.304	8.812	93.86	6.14	
14	L34446-03	SB-03_TP-3 (1-5)	as rec		12/30/16 3:39	1.288	9.782	8.928	89.95	10.05	
15	L34446-04	TP-6 (7-10)	as rec		12/30/16 4:55	1.305	9.262	7.803	81.66	18.34	
16	L34446-05	TP-8 (3.5-13)	as rec		12/30/16 6:12	1.311	9.258	8.968	96.35	3.65	
17	L34446-06	TP-9 (7-14)	as rec		12/30/16 7:29	1.306	9.736	9.604	98.43	1.57	
18	L34446-07	TP-12 (7-9)	as rec		12/30/16 8:46	1.312	9.861	8.891	88.65	11.35	
19	L34446-08	TP-14 (3-7)	as rec		12/30/16 10:03	1.311	9.655	9.26	95.27	4.73	
20	L34446-09	TP-20 (12-14)	as rec		12/30/16 11:20	1.296	9.875	8.962	89.36	10.64	

Report Comments: _____

Internal Comments _____

AREV: RBX 12/30/16
Initials, Date

SREV: BRD 12/30/16
Initials, Date

L34446-1701191414

12/30/2016 11:44:48 AM 122316

PTS

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415419

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 12/29/2016 10:37
Start Date/Time: 12/29/2016 11:00
End Date/Time: 12/30/2016 11:20

Sample	Login Comments
L34305-01	ZIPLOCK || In Inorganic Cooler
L34305-02	ZIPLOCK || In Inorganic Cooler
L34305-03	ZIPLOCK || In Inorganic Cooler
L34305-04	ZIPLOCK || In Inorganic Cooler
L34425-01	SJ(3),ZIPLOCK || 1 Inorg SJ and Ziplock bag in the Inorganic cooler, 1 Org SJ in the Organic cooler, 1 Org VOA SJ in the VOA fridge.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: PBT
Date: 12/30/16
Approved: ARD
Date: 12/30/16

Analyst: PBT

Workgroup: WG415419

Analysis Date: 12/30/16

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?	✓		
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.02.14.08

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415419

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: [illegible]
ACZ Dept: 25
Create Date: 12/29/2016 10:37
Start Date/Time: 12/29/16 11:20
End Date/Time: 12/30/16 11:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan And Sample Weight (g)	Dried Sample And Pan Weight (g)	Percent Solid (%)	Percent Moisture (%)	Comments
1	WG415419PBS	NONE				1.296	10.045	1.296			
2	L34305-01	I-288C RUN 4 2+3				1.296	9.307	8.301			
3	L34305-01DUP	NONE				1.295	9.325	8.299			
4	L34305-02	CM2-7C RUN 3 SAMPLE				1.288	9.595	8.092			
5	L34305-03	CM3-2C RUN 3 SAMPLE				1.282	9.751	9.013			
6	L34305-04	CM6-5C RUN 6 SAMPLE				1.278	9.371	7.524			
7	L34425-01	4B 4 2.0				1.280	9.229	8.760			
8	L34445-01	TP-6_7_9 (2-5)				1.288	9.270	8.332			
9	L34445-02	TP-12 (2-4)				1.293	9.709	8.986			
10	L34445-03	TP-15_16 (2-13)				1.296	9.207	8.084			
11	L34445-04	TP-20 (1-4)				1.293	9.393	8.685			
12	L34446-01	SB-01_02GT (1.5-6.5)				1.294	9.634	8.458			
13	L34446-02	SB-07GT (4-21)				1.287	9.304	8.812			
14	L34446-03	SB-03_TP-3 (1-5)				1.288	9.782	8.928			
15	L34446-04	TP-6 (7-10)				1.305	9.262	7.803			
16	L34446-05	TP-8 (3.5-13)				1.311	9.258	8.968			
17	L34446-06	TP-9 (7-14)				1.306	9.736	9.604			
18	L34446-07	TP-12 (7-9)				1.312	9.861	8.991			
19	L34446-08	TP-14 (3-7)				1.311	9.655	9.260			
20	L34446-09	TP-20 (12-14)				1.296	9.875	8.962			

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415419

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 12/29/2016 10:37
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34305-01	ZIPLOCK || In Inorganic Cooler
L34305-02	ZIPLOCK || In Inorganic Cooler
L34305-03	ZIPLOCK || In Inorganic Cooler
L34305-04	ZIPLOCK || In Inorganic Cooler
L34425-01	SJ(3),ZIPLOCK || 1 Inorg SJ and Ziplock bag in the Inorganic cooler, 1 Org SJ in the Organic cooler, 1 Org VOA SJ in the VOA fridge.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415419

Date Reported: 30-Dec-16
Run ID: R1488720
Date Analyzed: 29-Dec-16
ICAL Workgroup:
Instrument ID: SOILS

WG415419PBS

Tag:

Measured: 12/29/2016 11:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	1.296	1		g	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	10.045	1		g	++					
SREV	PAN WEIGHT	PREP	1.296	1		g	++					
SREV	PERCENT SOLID	FOUND		1	U	%	++	0.1	0.5			

L34305-01

Tag:

Measured: 12/29/2016 12:16:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.301	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.307	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	12.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	87.4	1		%	++	0.1	0.5		TB	

L34305-01DUP

Tag:

Measured: 12/29/2016 1:33:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	8.299	1		g	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	9.325	1		g	++					
SREV	PAN WEIGHT	PREP	1.295	1		g	++					
SREV	PERCENT MOISTURE	FOUND	12.78	1		%	++	0.1	0.5			
SREV	PERCENT MOISTURE	RPD	1	1		%	++	0.1	0.5			
SREV	PERCENT SOLID	FOUND	87.22	1		%	++	0.1	0.5			
SREV	PERCENT SOLID	RPD	0	1		%	++	0.1	0.5			

L34305-02

Tag:

Measured: 12/29/2016 2:50:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.082	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.595	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	18.2	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	81.8	1		%	++	0.1	0.5		TB	

L34305-03

Tag:

Measured: 12/29/2016 4:07:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.013	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.751	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.282	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	8.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	91.3	1		%	++	0.1	0.5		TB	

L34305-04

Tag: Measured: 12/29/2016 5:24:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	7.524	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.371	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.278	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	22.8	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	77.2	1		%	++	0.1	0.5		TB	

L34425-01

Tag: Measured: 12/29/2016 6:41:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.76	1		g	++				TA TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.229	1		g	++				TA TB	
NEED	PAN WEIGHT	PREP	1.28	1		g	++				TA TB	
NEED	PERCENT MOISTURE	REG	5.9	1		%	++	0.1	0.5		TA TB	
SREV	PERCENT SOLID	NT-SOLID	94.1	1		%	++	0.1	0.5		TA TB	

L34445-01

Tag: Measured: 12/29/2016 7:57:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.332	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.27	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	11.8	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	88.3	1		%	++	0.1	0.5		TB	

L34445-02

Tag: Measured: 12/29/2016 9:14:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.986	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.709	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.293	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	8.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	91.4	1		%	++	0.1	0.5		TB	

L34445-03

Tag: Measured: 12/29/2016 10:31:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.084	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.207	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	14.2	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	85.8	1		%	++	0.1	0.5		TB	

L34445-04

Tag: Measured: 12/29/2016 11:48:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.685	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.393	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.293	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	8.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	91.3	1		%	++	0.1	0.5		TB	

L34446-01

Tag: Measured: 12/30/2016 1:05:21 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.458	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.634	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.294	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	14.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	85.9	1		%	++	0.1	0.5		TB	

L34446-02

Tag: Measured: 12/30/2016 2:22:12 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.812	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.304	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.287	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	6.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	93.9	1		%	++	0.1	0.5		TB	

L34446-03

Tag: Measured: 12/30/2016 3:39:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.928	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.782	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	10.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	90.0	1		%	++	0.1	0.5		TB	

L34446-04

Tag: Measured: 12/30/2016 4:55:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	7.803	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.262	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.305	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	18.3	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	81.7	1		%	++	0.1	0.5		TB	

L34446-05

Tag: Measured: 12/30/2016 6:12:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.968	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.258	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.311	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	3.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	96.4	1		%	++	0.1	0.5		TB	

L34446-06

Tag: Measured: 12/30/2016 7:29:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.604	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.736	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.306	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	1.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	98.4	1		%	++	0.1	0.5		TB	

L34446-07

Tag:

Measured: 12/30/2016 8:46:27 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.891	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.861	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.312	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	11.4	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	88.7	1		%	++	0.1	0.5		TB	

L34446-08

Tag:

Measured: 12/30/2016 10:03:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.26	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.655	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.311	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	4.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	95.3	1		%	++	0.1	0.5		TB	

L34446-09

Tag:

Measured: 12/30/2016 11:20:09 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.962	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.875	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	10.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	89.4	1		%	++	0.1	0.5		TB	

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG416138

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/12/2017 16:34
Start Date/Time: 01/12/2017 16:35
End Date/Time: 01/18/2017 16:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	S FORMS MOD	Sulfur HCl Residue (%)	Sulfur HNO3 Residue (%)	Sulfur Pyritic Sulfide (%)	Sulfur Organic Residual (%)	Sulfur Sulfate (%)	Total Sulfur minus Sulfate (%)	Sulfur Total (%)	Comments
1	WG416138PBS	NONE	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
2	WG416138LCSS	PCN51462	<250		01/12/17 16:35	☑	0.44	0.28	0.16	0.28	3.23	0.44	3.67	
3	L34446-01	SB-01_02GT (1.5-6.5)	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
4	L34446-01MS	PCN49456	<250		01/12/17 16:35	☑	0	0	0	0	1.16	0	1.16	
5	L34446-01DUP	NONE	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
6	L34446-02	SB-07GT (4-21)	<250		01/12/17 16:35	☑	0.04	0.02	0.02	0.02	0.02	0.04	0.06	
7	L34446-03	SB-03_TP-3 (1-5)	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
8	L34446-04	TP-6 (7-10)	<250		01/12/17 16:35	☑	0	0	0	0	0.02	0	0.02	
9	L34446-05	TP-8 (3.5-13)	<250		01/12/17 16:35	☑	0.54	0.01	0.53	0.01	0.2	0.54	0.74	
10	L34446-06	TP-9 (7-14)	<250		01/12/17 16:35	☑	0.91	0.02	0.89	0.02	0.08	0.91	0.99	
11	L34446-07	TP-12 (7-9)	<250		01/12/17 16:35	☑	0	0	0	0	0.02	0	0.02	
12	L34446-08	TP-14 (3-7)	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
13	L34446-09	TP-20 (12-14)	<250		01/12/17 16:35	☑	0.09	0	0.09	0	0.05	0.09	0.14	
14	L34674-11	SB-01_02GT (1.5-6.5)	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
15	L34674-12	TP-6 (7-10)-DUPLICAT	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
16	L34674-13	TP-20 (12-14)-DUPLIC	<250		01/12/17 16:35	☑	0.17	0	0.17	0	0.08	0.17	0.25	

Report Comments: _____

Internal Comments _____

AREV: CRA 1-19-17
Initials, Date

SREV: BD 1/19/17
Initials, Date

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG416138

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/12/2017 16:34
Start Date/Time: 01/12/2017 16:35
End Date/Time: 01/18/2017 16:00

Sample	Login Comments
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: CRA
Date: 1-19-17

Approved: BRD
Date: 1/19/17

Analyst: CRA

Workgroup: 416138

Analysis Date: 1-18-17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?			X
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
2:3 HCl	SI170113-3	1-13-18
1:7 HNO3	SI161220-1	12-20-17
silver nitrate	SI161118-2	11-18-17
nesslers	52122	8-30-17

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALCHK	0.2010	soils/ore	1/18/2017 10:30:35 AM	32.623	0.018662	A01
502-814	CALCHK	0.1930	soils/ore	1/18/2017 10:35:50 AM	0.27817	23.316	A02
LCSS	CALCHK	0.2000	soils/ore	1/18/2017 10:41:25 AM	3.8427	3.6670	A04
502-813	CALCHK	0.2030	soils/ore	1/18/2017 10:45:04 AM	1.2075	1.0844	A06
Blank	CALCHK	0.2020	soils/ore	1/18/2017 10:47:52 AM	0.0010210	-0.011873	A05
LCSS	CALCHK	0.2050	soils/ore	1/18/2017 12:51:56 PM	3.7793	3.5784	D10
Blank	CALCHK	0.1910	soils/ore	1/18/2017 12:54:56 PM	0.0019022	-0.0099433	E01
LCSS	ST	0.2030	soils/ore	1/18/2017 1:11:49 PM	3.6709	3.6388	A01
L34446-01	ST	0.2030	soils/ore	1/18/2017 1:19:18 PM	0.0047814	0.83092	A02
L34446-01MS	ST	0.2000	soils/ore	1/18/2017 1:23:37 PM	1.1557	1.8304	A03
L34446-01DUP	ST	0.2030	soils/ore	1/18/2017 1:26:37 PM	0.0036501	0.87274	A04
L34446-02	ST	0.2000	soils/ore	1/18/2017 1:29:37 PM	0.063616	1.5417	A05
L34446-03	ST	0.1920	soils/ore	1/18/2017 1:32:48 PM	0.0057758	2.3094	A06
L34446-04	ST	0.1970	soils/ore	1/18/2017 1:35:41 PM	0.017093	0.25351	A07
L34446-05	ST	0.1920	soils/ore	1/18/2017 1:38:41 PM	0.74318	2.1003	A08
L34446-06	ST	0.1990	soils/ore	1/18/2017 1:41:52 PM	0.98686	2.2211	A09
L34446-07	ST	0.2010	soils/ore	1/18/2017 1:44:51 PM	0.022427	2.6341	A10
L34446-08	ST	0.2060	soils/ore	1/18/2017 1:47:50 PM	0.0070068	3.5771	B01
L34446-09	ST	0.2070	soils/ore	1/18/2017 1:50:50 PM	0.13900	2.5350	B02
L34674-11	ST	0.1960	soils/ore	1/18/2017 1:54:01 PM	0.0044501	0.63788	B03
L34674-12	ST	0.1950	soils/ore	1/18/2017 1:56:50 PM	0.0049153	0.16135	B04
L34674-13	ST	0.2040	soils/ore	1/18/2017 1:59:50 PM	0.24514	2.8997	B05
LCSS	CALCHK	0.1920	soils/ore	1/18/2017 2:03:13 PM	3.6329	3.6468	B06
Blank	CALCHK	0.1970	soils/ore	1/18/2017 2:06:26 PM	-0.0055591	-0.0050240	B07
LCSS	HCl	0.2020	soils/ore	1/18/2017 2:22:14 PM	0.43965	3.4697	A01
L34446-01	HCl	0.2000	soils/ore	1/18/2017 2:28:20 PM	-0.0012526	0.19119	A02
L34446-01DUP	HCl	0.1990	soils/ore	1/18/2017 2:30:31 PM	0.000029461	0.18179	A03
L34446-02	HCl	0.2040	soils/ore	1/18/2017 2:32:22 PM	0.042828	1.2539	A04
L34446-03	HCl	0.2000	soils/ore	1/18/2017 2:34:33 PM	0.00062796	0.75801	A05
L34446-04	HCl	0.1990	soils/ore	1/18/2017 2:36:26 PM	0.0070280	0.23225	A06
L34446-05	HCl	0.2030	soils/ore	1/18/2017 2:38:40 PM	0.53646	0.27550	A07
L34446-06	HCl	0.2030	soils/ore	1/18/2017 2:40:55 PM	0.91404	0.20558	A08
L34446-07	HCl	0.2010	soils/ore	1/18/2017 2:43:06 PM	0.0088283	0.62676	A09
L34446-08	HCl	0.2040	soils/ore	1/18/2017 2:45:19 PM	-0.00014175	0.19052	A10
L34446-09	HCl	0.1990	soils/ore	1/18/2017 2:47:44 PM	0.093036	0.28982	B01
L34674-11	HCl	0.1990	soils/ore	1/18/2017 2:50:12 PM	-0.0012483	0.20040	B02
L34674-12	HCl	0.2030	soils/ore	1/18/2017 2:52:28 PM	0.0018206	0.16335	B03
L34674-13	HCl	0.1960	soils/ore	1/18/2017 2:54:28 PM	0.16803	0.33008	B04
LCSS	CALCHK	0.1990	soils/ore	1/18/2017 2:57:19 PM	3.5801	3.6741	B05
Blank	CALCHK	0.2010	soils/ore	1/18/2017 2:59:30 PM	-0.000074520	-0.013991	B06
LCSS	HNO3	0.1990	soils/ore	1/18/2017 3:15:15 PM	0.27565	3.3156	A01
L34446-01	HNO3	0.2020	soils/ore	1/18/2017 3:17:13 PM	0.0028577	0.14038	A02
L34446-01DUP	HNO3	0.2000	soils/ore	1/18/2017 3:19:24 PM	0.0012069	0.10954	A03
L34446-02	HNO3	0.1990	soils/ore	1/18/2017 3:21:15 PM	0.019851	1.1677	A04
L34446-03	HNO3	0.2010	soils/ore	1/18/2017 3:23:26 PM	0.0015206	0.38654	A05
L34446-04	HNO3	0.1980	soils/ore	1/18/2017 3:25:20 PM	0.0032678	0.14115	A06
L34446-05	HNO3	0.2010	soils/ore	1/18/2017 3:27:31 PM	0.010790	0.18561	A07
L34446-06	HNO3	0.1990	soils/ore	1/18/2017 3:29:26 PM	0.018288	0.18314	A08
L34446-07	HNO3	0.1960	soils/ore	1/18/2017 3:31:37 PM	0.0050174	0.36018	A09
L34446-08	HNO3	0.2020	soils/ore	1/18/2017 3:34:04 PM	0.0023800	0.091660	A10
L34446-09	HNO3	0.2070	soils/ore	1/18/2017 3:36:15 PM	0.0036639	0.22599	B01
L34674-11	HNO3	0.1970	soils/ore	1/18/2017 3:38:26 PM	0.0024456	0.12707	B02
L34674-12	HNO3	0.1960	soils/ore	1/18/2017 3:40:37 PM	0.0020005	0.13222	B03

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
L34674-13	HNO3	0.2000	soils/ore	1/18/2017 3:42:35 PM	0.0057722	0.22671	B04
LCSS	CALCHK	0.2050	soils/ore	1/18/2017 3:47:46 PM	3.5983	3.7338	B05
Blank	CALCHK	0.2000	soils/ore	1/18/2017 3:49:46 PM	0.000089965	-0.0078375	B06

Element	Average	Std. Deviation	RSD	Count
Mass	0.1999	0.004	1.869	56
Sulfur %	1.1103	4.43674	399.6	56
Carbon %	1.5335	3.24259	211.4	56

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALIBRATE	0.1500	soils/ore	1/13/2017 10:55:17 AM	33.394	0.0019411	A02
High Sulfur	CALIBRATE	0.3500	soils/ore	1/13/2017 11:03:22 AM	32.695	0.0094383	A10
502-814	CALIBRATE	0.2500	soils/ore	1/13/2017 11:06:47 AM	0.34115	22.653	A04
502-814	CALIBRATE	0.1500	soils/ore	1/13/2017 11:09:58 AM	0.33399	22.347	A05
502-814	CALIBRATE	0.3500	soils/ore	1/13/2017 11:12:57 AM	0.33997	22.619	A06
502-813	CALIBRATE	0.2500	soils/ore	1/13/2017 11:17:21 AM	1.3270	1.0742	A07
502-813	CALIBRATE	0.1500	soils/ore	1/13/2017 11:20:43 AM	1.3041	1.0756	A08
502-813	CALIBRATE	0.3500	soils/ore	1/13/2017 11:24:54 AM	1.3193	1.0668	A09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2500	0.09	37.03	8
Sulfur %	8.8819	14.9217	168.0	8
Carbon %	8.8558	11.3402	128.1	8

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG416138

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/12/2017 16:34
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SFORMSMOD	Sulfur HCl Residue (%)	Sulfur HNO3 Residue (%)	Sulfur Pyritic Sulfide (%)	Sulfur Organic Residual (%)	Sulfur Sulfate (%)	Total Sulfur minus Sulfate (%)	Sulfur Total (%)	Comments
1	WG416138PBS	NONE				✓	—	—						
2	WG416138LCSS	PCN51462				✓	0.202	0.199						
3	L34446-01	SB-01_02GT (1.5-6.5)				✓	0.200	0.202						
4	L34446-01MS	PCN49456				✓	—	—						
5	L34446-01DUP	NONE				✓	0.199	0.200						
6	L34446-02	SB-07GT (4-21)				✓	0.204	0.199						
7	L34446-03	SB-03_TP-3 (1-5)				✓	0.200	0.201						
8	L34446-04	TP-6 (7-10)				✓	0.199	0.198						
9	L34446-05	TP-8 (3.5-13)				✓	0.203	0.201						
10	L34446-06	TP-9 (7-14)				✓	0.203	0.199						
11	L34446-07	TP-12 (7-9)				✓	0.201	0.196						
12	L34446-08	TP-14 (3-7)				✓	0.204	0.202						
13	L34446-09	TP-20 (12-14)				✓	0.199	0.207						
14	L34674-11	SB-01_02GT (1.5-6.5)				✓	0.199	0.197						
15	L34674-12	TP-6 (7-10)-DUPLICAT				✓	0.203	0.196						
16	L34674-13	TP-20 (12-14)-DUPLIC				✓	0.196	0.200						

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG416138

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/12/2017 16:34
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416138

Date Reported:	19-Jan-17
Run ID:	R1494007
Date Analyzed:	12-Jan-17
ICAL Workgroup:	
Instrument ID:	SOILS

L34446-01

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-01DUP

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	RPD	0	1		%	++	0.01	0.1		RA	
SREV	SULFUR PYRITIC SULFIDE	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	RPD	0	1		%	++	0.01	0.1		RA	
SREV	SULFUR SULFATE	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR SULFATE	RPD	0	1		%	++	0.01	0.1		RA	
SREV	SULFUR TOTAL	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR TOTAL	RPD	0	1		%	++	0.01	0.1		RA	
SREV	TOTAL SULFUR MINUS SULFATE	FOUND		1	U	%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	RPD	0	1		%	++	0.01	0.1		RA	

L34446-01MS

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR SULFATE	PREP	1.16	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	FOUND	1.16	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	87	1		%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	PREP	0	1		%	++	0.01	0.1			

L34446-02

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.04	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.06	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.04	1	B	%	++	0.01	0.1		RA TB	

L34446-03

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-04

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-05

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.54	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.01	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.01	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.53	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.20	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.74	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.54	1		%	++	0.01	0.1		RA TB	

L34446-06

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.91	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.89	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.08	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.99	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.91	1		%	++	0.01	0.1		RA TB	

L34446-07

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-08

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-09

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.09	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.09	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.05	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.14	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.09	1	B	%	++	0.01	0.1		RA TB	

L34674-11

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34674-12

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34674-13

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.17	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.17	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.08	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.25	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.17	1		%	++	0.01	0.1		RA TB	

WG416138LCSS

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0.44	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0.28	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	PREP	0.28	1		%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	PREP	0.16	1		%	++	0.01	0.1			
SREV	SULFUR SULFATE	PREP	3.23	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	FOUND	3.67	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	96	1		%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	PREP	0.44	1		%	++	0.01	0.1			

WG416138PBS

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND		1	U	%	++	0.01	0.1			

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415221

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: brd
ACZ Dept: 20
Create Date: 12/22/2016 15:01
Start Date/Time: 12/27/2016 9:00
End Date/Time: 12/29/2016 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L34305-01	I-288C RUN 4 2+3	as rec			12/27/16 9:00	12/29/2016	
2	L34305-02	CM2-7C RUN 3 SAMPLE	as rec			12/27/16 11:34	12/29/2016	
3	L34305-03	CM3-2C RUN 3 SAMPLE	as rec			12/27/16 14:09	12/29/2016	
4	L34305-04	CM6-5C RUN 6 SAMPLE	as rec			12/27/16 16:44	12/29/2016	
5	**L34427-01**	SHAFT-MDOLCARB	as rec		SAVE SX	12/27/16 19:18	12/29/2016	
6	**L34427-02**	SHAFT-DOLCARB	as rec		SAVE SX	12/27/16 21:53	12/29/2016	
7	**L34427-03**	SHAFT-DOLCARBBC	as rec		SAVE SX	12/28/16 0:28	12/29/2016	
8	**L34427-04**	SHAFT-CARBLAMPBC	as rec		SAVE SX	12/28/16 3:03	12/29/2016	
9	**L34427-05**	SHAFT-MDST	as rec		SAVE SX	12/28/16 5:37	12/29/2016	
10	**L34427-06**	SHAFT-LMST	as rec		SAVE SX	12/28/16 8:12	12/29/2016	
11	**L34427-07**	SHAFT-MAF	as rec		SAVE SX	12/28/16 10:47	12/29/2016	
12	L34445-01	TP-6_7_9 (2-5)	as rec			12/28/16 13:22	12/29/2016	
13	L34445-02	TP-12 (2-4)	as rec			12/28/16 15:56	12/29/2016	
14	L34445-03	TP-15_16 (2-13)	as rec			12/28/16 18:31	12/29/2016	
15	L34445-04	TP-20 (1-4)	as rec			12/28/16 21:06	12/29/2016	
16	L34446-01	SB-01_02GT (1.5-6.5)	as rec			12/28/16 23:41	12/29/2016	
17	L34446-02	SB-07GT (4-21)	as rec			12/29/16 2:15	12/29/2016	
18	L34446-03	SB-03_TP-3 (1-5)	as rec			12/29/16 4:50	12/29/2016	
19	L34446-04	TP-6 (7-10)	as rec			12/29/16 7:25	12/29/2016	
20	L34446-05	TP-8 (3.5-13)	as rec			12/29/16 9:59	12/29/2016	

Report Comments: _____

Internal Comments _____

AREV: RBT 12/29/16
Initials, Date

SREV: [illegible] 12/30/16
Initials, Date

L34446-1701191414

12/29/2016 10:55:42 AM 121916

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415221

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: brd
ACZ Dept: 20
Create Date: 12/22/2016 15:01
Start Date/Time: 12/27/2016 9:00
End Date/Time: 12/29/2016 10:00

Sample	Login Comments
L34305-01	ZIPLOCK || In Inorganic Cooler
L34305-02	ZIPLOCK || In Inorganic Cooler
L34305-03	ZIPLOCK || In Inorganic Cooler
L34305-04	ZIPLOCK || In Inorganic Cooler
L34427-01	ZIPLOCK(9) || Composite.
L34427-02	ZIPLOCK(10) || Composite.
L34427-03	ZIPLOCK(5) || Composite.
L34427-04	ZIPLOCK(4) || Composite.
L34427-05	ZIPLOCK(7) || Composite.
L34427-06	ZIPLOCK(8) || Composite.
L34427-07	ZIPLOCK(8) || Composite.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

L34446-1701191414

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBI
Date: 12/29/16
Approved:
Date: 12/30/16

Analyst: BRD

Workgroup: WG415221

Analysis Date: 12/29/16

Sample type used: SD

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5.Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?			✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.02.14.08

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415221

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: JD
ACZ Dept: 20
Create Date: 12/22/2016 15:01
Start Date/Time: 12/27/16 9:00
End Date/Time: 12/29/16 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L34305-01	I-288C RUN 4 2+3	as rec					
2	L34305-02	CM2-7C RUN 3 SAMPLE						dry mest
3	L34305-03	CM3-2C RUN 3 SAMPLE						
4	L34305-04	CM6-5C RUN 6 SAMPLE						
5	**L34427-01**	SHAFT-MDOLCARB			SAVE SX			
6	**L34427-02**	SHAFT-DOLCARB			SAVE SX			
7	**L34427-03**	SHAFT-DOLCARBBC			SAVE SX			dry mest
8	**L34427-04**	SHAFT-CARBLAMPBC			SAVE SX			
9	**L34427-05**	SHAFT-MDST			SAVE SX			
10	**L34427-06**	SHAFT-LMST			SAVE SX			
11	**L34427-07**	SHAFT-MAF			SAVE SX			
12	L34445-01	TP-6_7_9 (2-5)						
13	L34445-02	TP-12 (2-4)						
14	L34445-03	TP-15_16 (2-13)						dry mest
15	L34445-04	TP-20 (1-4)						
16	L34446-01	SB-01_02GT (1.5-6.5)						
17	L34446-02	SB-07GT (4-21)						
18	L34446-03	SB-03_TP-3 (1-5)						
19	L34446-04	TP-6 (7-10)						
20	L34446-05	TP-8 (3.5-13)						

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415221

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 12/22/2016 15:01
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34305-01	ZIPLOCK || In Inorganic Cooler
L34305-02	ZIPLOCK || In Inorganic Cooler
L34305-03	ZIPLOCK || In Inorganic Cooler
L34305-04	ZIPLOCK || In Inorganic Cooler
L34427-01	ZIPLOCK(9) || Composite.
L34427-02	ZIPLOCK(10) || Composite.
L34427-03	ZIPLOCK(5) || Composite.
L34427-04	ZIPLOCK(4) || Composite.
L34427-05	ZIPLOCK(7) || Composite.
L34427-06	ZIPLOCK(8) || Composite.
L34427-07	ZIPLOCK(8) || Composite.
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415221

Date Reported: 30-Dec-16
Run ID: R1488401
Date Analyzed: 27-Dec-16
ICAL Workgroup:
Instrument ID: SOILSPREP

L34305-01

Tag: Measured: 12/27/2016 9:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34305-02

Tag: Measured: 12/27/2016 11:34:44 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34305-03

Tag: Measured: 12/27/2016 2:09:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34305-04

Tag: Measured: 12/27/2016 4:44:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-01

Tag: Measured: 12/27/2016 7:18:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-02

Tag: Measured: 12/27/2016 9:53:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-03

Tag: Measured: 12/28/2016 12:28:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-04

Tag: Measured: 12/28/2016 3:03:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-05

Tag: Measured: 12/28/2016 5:37:52 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-06

Tag: Measured: 12/28/2016 8:12:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34427-07 Tag: Measured: 12/28/2016 10:47:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34445-01 Tag: Measured: 12/28/2016 1:22:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34445-02 Tag: Measured: 12/28/2016 3:56:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34445-03 Tag: Measured: 12/28/2016 6:31:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34445-04 Tag: Measured: 12/28/2016 9:06:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-01 Tag: Measured: 12/28/2016 11:41:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-02 Tag: Measured: 12/29/2016 2:15:44 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-03 Tag: Measured: 12/29/2016 4:50:28 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-04 Tag: Measured: 12/29/2016 7:25:12 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-05 Tag: Measured: 12/29/2016 9:59:56 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415229

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: brd
ACZ Dept: 20
Create Date: 12/22/2016 16:13
Start Date/Time: 12/27/2016 9:00
End Date/Time: 12/29/2016 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L34425-01	4B 4 2.0	as rec		SAVE SX	12/27/16 9:00	12/29/2016	
2	L34446-06	TP-9 (7-14)	as rec			12/27/16 11:43	12/29/2016	
3	L34446-07	TP-12 (7-9)	as rec			12/27/16 14:26	12/29/2016	
4	L34446-08	TP-14 (3-7)	as rec			12/27/16 17:10	12/29/2016	
5	L34446-09	TP-20 (12-14)	as rec			12/27/16 19:53	12/29/2016	
6	L34545-01	TA 205 A	as rec			12/27/16 22:36	12/29/2016	
7	L34545-02	TA 205 B	as rec			12/28/16 1:20	12/29/2016	
8	L34545-03	TA 52 A	as rec			12/28/16 4:03	12/29/2016	
9	L34545-04	TA 52 B	as rec			12/28/16 6:46	12/29/2016	
10	L34635-03	LPT-1	as rec		SAVE SX	12/28/16 9:30	12/29/2016	
11	L34666-01	BIOSOLIDS 5680-27	as rec		SAVE SX	12/28/16 12:13	12/29/2016	
12	**L34672-01**	CC-493 ALLUVIUM	as rec		SAVE SX	12/28/16 14:56	12/29/2016	
13	**L34672-02**	CC-496 ALLUVIUM	as rec		SAVE SX	12/28/16 17:40	12/29/2016	
14	**L34672-03**	CC-497 ALLUVIUM	as rec		SAVE SX	12/28/16 20:23	12/29/2016	
15	**L34672-04**	CC-499 ALLUVIUM	as rec		SAVE SX	12/28/16 23:06	12/29/2016	
16	**L34672-05**	CC-500 ALLUVIUM	as rec		SAVE SX	12/29/16 1:50	12/29/2016	
17	**L34672-06**	SO16-MW4A	as rec		SAVE SX	12/29/16 4:33	12/29/2016	
18	**L34672-07**	DH-16-ST-01P	as rec		SAVE SX	12/29/16 7:16	12/29/2016	
19	**L34672-08**	DH-16-ST-03P	as rec		SAVE SX	12/29/16 10:00	12/29/2016	

Report Comments: _____

Internal Comments _____

AREV: BRD 12/29/16
Initials, Date

SREV: BRD 12/30/16
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415229

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: brd
ACZ Dept: 20
Create Date: 12/22/2016 16:13
Start Date/Time: 12/27/2016 9:00
End Date/Time: 12/29/2016 10:00

Sample	Login Comments
L34425-01	SJ(3),ZIPLOCK || 1 Inorg SJ and Ziplock bag in the Inorganic cooler, 1 Org SJ in the Organic cooler, 1 Org VOA SJ in the VOA fridge.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34545-01	ZIPLOCK || In the Inorganic cooler.
L34545-02	ZIPLOCK || In the Inorganic cooler.
L34545-03	ZIPLOCK || In the Inorganic cooler.
L34545-04	ZIPLOCK || In the Inorganic cooler.
L34635-03	SJ || Located on the Quarantine Shelf.
L34666-01	SJ || Located in the Sludge Fridge.
L34672-01	ZIPLOCK || Delivered to Soils.
L34672-02	ZIPLOCK || Delivered to Soils.
L34672-03	ZIPLOCK || Delivered to Soils.
L34672-04	ZIPLOCK || Delivered to Soils.
L34672-05	ZIPLOCK || Delivered to Soils.
L34672-06	ZIPLOCK || Delivered to Soils.
L34672-07	ZIPLOCK || Delivered to Soils.
L34672-08	ZIPLOCK || Delivered to Soils.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34446-1701191414

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBA
Date: 12/29/16
Approved: BRD
Date: 12/30/16

Analyst: ~~RBA~~ RBA 12/29/16 BRD

Workgroup: WG415229

Analysis Date: 12/29/16

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5.Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?			✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415229

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BED
ACZ Dept: 20
Create Date: 12/22/2016 16:13
Start Date/Time: 12/27/16 9:00
End Date/Time: 12/29/16 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L34425-01	4B 4 2.0			SAVE SX			dry same
2	L34446-06	TP-9 (7-14)						
3	L34446-07	TP-12 (7-9)						
4	L34446-08	TP-14 (3-7)						save for %
5	L34446-09	TP-20 (12-14)						
6	L34545-01	TA 205 A						
7	L34545-02	TA 205 B						
8	L34545-03	TA 52 A						
9	L34545-04	TA 52 B						
10	L34635-03	LPT-1			SAVE SX			% HG prep 4 3050
11	L34666-01	BIOSOLIDS 5680-27			SAVE SX			TS, HG prep WE, 3050
12	**L34672-01**	CC-493 ALLUVIUM			SAVE SX			% HG, prep 4 CEC, HF, NP, A. SIEVE
13	**L34672-02**	CC-496 ALLUVIUM			SAVE SX			
14	**L34672-03**	CC-497 ALLUVIUM			SAVE SX			
15	**L34672-04**	CC-499 ALLUVIUM			SAVE SX			
16	**L34672-05**	CC-500 ALLUVIUM			SAVE SX			
17	**L34672-06**	SO16-MW4A			SAVE SX			
18	**L34672-07**	DH-16-ST-01P			SAVE SX			
19	**L34672-08**	DH-16-ST-03P			SAVE SX			

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415229

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 12/22/2016 16:13
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34425-01	SJ(3),ZIPLOCK || 1 Inorg SJ and Ziplock bag in the Inorganic cooler, 1 Org SJ in the Organic cooler, 1 Org VOA SJ in the VOA fridge.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34545-01	ZIPLOCK || In the Inorganic cooler.
L34545-02	ZIPLOCK || In the Inorganic cooler.
L34545-03	ZIPLOCK || In the Inorganic cooler.
L34545-04	ZIPLOCK || In the Inorganic cooler.
L34635-03	SJ || Located on the Quarantine Shelf.
L34666-01	SJ || Located in the Sludge Fridge.
L34672-01	ZIPLOCK || Delivered to Soils.
L34672-02	ZIPLOCK || Delivered to Soils.
L34672-03	ZIPLOCK || Delivered to Soils.
L34672-04	ZIPLOCK || Delivered to Soils.
L34672-05	ZIPLOCK || Delivered to Soils.
L34672-06	ZIPLOCK || Delivered to Soils.
L34672-07	ZIPLOCK || Delivered to Soils.
L34672-08	ZIPLOCK || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415229

Date Reported: 30-Dec-16
Run ID: R1488402
Date Analyzed: 27-Dec-16
ICAL Workgroup:
Instrument ID: SOILSPREP

L34425-01 Tag: Measured: 12/27/2016 9:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34446-06 Tag: Measured: 12/27/2016 11:43:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-07 Tag: Measured: 12/27/2016 2:26:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-08 Tag: Measured: 12/27/2016 5:10:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34446-09 Tag: Measured: 12/27/2016 7:53:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34545-01 Tag: Measured: 12/27/2016 10:36:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34545-02 Tag: Measured: 12/28/2016 1:20:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34545-03 Tag: Measured: 12/28/2016 4:03:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34545-04 Tag: Measured: 12/28/2016 6:46:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34635-03 Tag: Measured: 12/28/2016 9:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34666-01 Tag: Measured: 12/28/2016 12:13:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34672-01 Tag: Measured: 12/28/2016 2:56:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34672-02 Tag: Measured: 12/28/2016 5:40:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34672-03 Tag: Measured: 12/28/2016 8:23:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34672-04 Tag: Measured: 12/28/2016 11:06:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34672-05 Tag: Measured: 12/29/2016 1:50:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34672-06 Tag: Measured: 12/29/2016 4:33:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34672-07 Tag: Measured: 12/29/2016 7:16:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

L34672-08 Tag: Measured: 12/29/2016 10:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED				TA	

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
1	L34445-01	TP-6_7_9 (2-5)	dry		01/04/17 11:00	✔	✔	1/4/2017		1/4/2017								
2	L34445-02	TP-12 (2-4)	dry		01/04/17 12:05	✔	✔	1/4/2017		1/4/2017								
3	L34445-03	TP-15_16 (2-13)	dry		01/04/17 13:10	✔	✔	1/4/2017		1/4/2017								
4	L34445-04	TP-20 (1-4)	dry		01/04/17 14:16	✔	✔	1/4/2017		1/4/2017								
5	L34446-01	SB-01_02GT (1.5-6.5)	dry		01/04/17 15:21	✔	✔	1/4/2017		1/4/2017								
6	L34446-02	SB-07GT (4-21)	dry		01/04/17 16:26	✔	✔	1/4/2017		1/4/2017								
7	L34446-03	SB-03_TP-3 (1-5)	dry		01/04/17 17:32	✔	✔	1/4/2017		1/4/2017								
8	L34446-04	TP-6 (7-10)	dry		01/04/17 18:37	✔	✔	1/4/2017		1/4/2017								
9	L34446-05	TP-8 (3.5-13)	dry		01/04/17 19:43	✔	✔	1/4/2017		1/4/2017								
10	L34446-06	TP-9 (7-14)	dry		01/04/17 20:48	✔	✔	1/4/2017		1/4/2017								
11	L34446-07	TP-12 (7-9)	dry		01/04/17 21:53	✔	✔	1/4/2017		1/4/2017								
12	L34446-08	TP-14 (3-7)	dry		01/04/17 22:59	✔	✔	1/4/2017		1/4/2017								
13	L34446-09	TP-20 (12-14)	dry		01/05/17 0:04	✔	✔	1/4/2017		1/4/2017								
14	L34674-01	SB-06GT (1.5-10)	dry		01/05/17 1:09	✔	✔	1/5/2017		1/5/2017								
15	L34674-02	SB-07GT (0-4)	dry		01/05/17 2:15	✔	✔	1/5/2017		1/5/2017								
16	L34674-03	SB-09GT (8-12)	dry		01/05/17 3:20	✔	✔	1/5/2017		1/5/2017								
17	L34674-04	SB-09GT (18-22)	dry		01/05/17 4:26	✔	✔	1/5/2017		1/5/2017								
18	L34674-05	SB-12GT (0-27)	dry		01/05/17 5:31	✔	✔	1/5/2017		1/5/2017								
19	L34674-06	SB-13AL (0-25)	dry		01/05/17 6:36	✔	✔	1/5/2017		1/5/2017								
20	L34674-07	SB-14AL (0-15)	dry		01/05/17 7:42	✔	✔	1/5/2017		1/5/2017								
21	L34674-08	SB-14AL (15-35)	dry		01/05/17 8:47	✔	✔	1/5/2017		1/5/2017								

Report Comments: _____

Internal Comments _____

AREV: RBT 1/10/17
Initials, Date

SREV: TRD 1/9/17
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
22	L34674-09	SB-15AL (0-25)	dry		01/05/17 9:53	☑	☑	1/5/2017		1/5/2017								
23	L34674-10	SB-15AL (25-50)	dry		01/05/17 10:58	☑	☑	1/5/2017		1/5/2017								
24	L34674-11	SB-01_02GT (1.5-6.5)	dry		01/05/17 12:03	☑	☑	1/5/2017		1/5/2017								
25	L34674-12	TP-6 (7-10)-DUPLICAT	dry		01/05/17 13:09	☑	☑	1/5/2017		1/5/2017								
26	L34674-13	TP-20 (12-14)-DUPLIC	dry		01/05/17 14:14	☑	☑	1/5/2017		1/5/2017								
27	L34674-14	SB-09GT (8-12-DUPLIC	dry		01/05/17 15:19	☑	☑	1/5/2017		1/5/2017								

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: PDT
Date: 1/6/17
Approved: RD
Date: 1/9/17

Analyst: TJ ✓

Workgroup: WG41562 1

Analysis Date: 1/6/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?		✓	
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments: _____

FRMSO010.07.14.08

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: TN
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:20
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
1	L34445-01	TP-6_7_9 (2-5)			01/04/17	✓	✓											
2	L34445-02	TP-12 (2-4)				✓	✓											
3	L34445-03	TP-15_16 (2-13)				✓	✓											
4	L34445-04	TP-20 (1-4)				✓	✓											
5	L34446-01	SB-01_02GT (1.5-6.5)				✓	✓											
6	L34446-02	SB-07GT (4-21)				✓	✓											
7	L34446-03	SB-03_TP-3 (1-5)				✓	✓											
8	L34446-04	TP-6 (7-10)				✓	✓											
9	L34446-05	TP-8 (3.5-13)				✓	✓											
10	L34446-06	TP-9 (7-14)				✓	✓											
11	L34446-07	TP-12 (7-9)				✓	✓											
12	L34446-08	TP-14 (3-7)				✓	✓											
13	L34446-09	TP-20 (12-14)				✓	✓											
14	L34674-01	SB-06GT (1.5-10)			01/05/17	✓	✓											
15	L34674-02	SB-07GT (0-4)				✓	✓											
16	L34674-03	SB-09GT (8-12)				✓	✓											
17	L34674-04	SB-09GT (18-22)				✓	✓											
18	L34674-05	SB-12GT (0-27)				✓	✓											
19	L34674-06	SB-13AL (0-25)				✓	✓											
20	L34674-07	SB-14AL (0-15)				✓	✓											
21	L34674-08	SB-14AL (15-35)				✓	✓											

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
22	L34674-09	SB-15AL (0-25)			01/05/17	☑	☑											
23	L34674-10	SB-15AL (25-50)				☑	☑											
24	L34674-11	SB-01_02GT (1.5-6.5)				☑	☑											
25	L34674-12	TP-6 (7-10)-DUPLICAT				☑	☑											
26	L34674-13	TP-20 (12-14)-DUPLIC				☑	☑											
27	L34674-14	SB-09GT (8-12-DUPLIC				☑	☑											

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415621

Date Reported: 09-Jan-17
Run ID: R1490404
Date Analyzed: 04-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

L34445-01

Tag:

Measured: 1/4/2017 11:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-02

Tag:

Measured: 1/4/2017 12:05:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-03

Tag:

Measured: 1/4/2017 1:10:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-04

Tag:

Measured: 1/4/2017 2:16:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34446-01

Tag:

Measured: 1/4/2017 3:21:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-02

Tag:

Measured: 1/4/2017 4:26:55 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-03

Tag:

Measured: 1/4/2017 5:32:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-04

Tag:

Measured: 1/4/2017 6:37:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-05

Tag: Measured: 1/4/2017 7:43:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-06

Tag: Measured: 1/4/2017 8:48:27 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-07

Tag: Measured: 1/4/2017 9:53:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-08

Tag: Measured: 1/4/2017 10:59:13 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-09

Tag: Measured: 1/5/2017 12:04:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-01

Tag: Measured: 1/5/2017 1:09:59 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-02

Tag: Measured: 1/5/2017 2:15:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-03

Tag: Measured: 1/5/2017 3:20:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-04

Tag: Measured: 1/5/2017 4:26:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-05

Tag: Measured: 1/5/2017 5:31:31 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-06

Tag: Measured: 1/5/2017 6:36:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-07

Tag: Measured: 1/5/2017 7:42:17 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-08

Tag: Measured: 1/5/2017 8:47:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-09

Tag: Measured: 1/5/2017 9:53:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-10

Tag: Measured: 1/5/2017 10:58:26 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-11

Tag: Measured: 1/5/2017 12:03:49 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-12

Tag: Measured: 1/5/2017 1:09:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-13

Tag: Measured: 1/5/2017 2:14:35 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-14 **Tag:** **Measured:** **1/5/2017 3:19:58 PM**

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

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Run Log by Workgroup

Monsanto Company
Project ID: L34446

Soil Preparation

WG415221 **Air Dry**

Sample	Date	SCN	SP AIRDRY
L34305-01	12/27/16 09:00		X
L34305-02	12/27/16 11:34		X
L34305-03	12/27/16 14:09		X
L34305-04	12/27/16 16:44		X
L34427-01	12/27/16 19:18		X
L34427-02	12/27/16 21:53		X
L34427-03	12/28/16 00:28		X
L34427-04	12/28/16 03:03		X
L34427-05	12/28/16 05:37		X
L34427-06	12/28/16 08:12		X
L34427-07	12/28/16 10:47		X
L34445-01	12/28/16 13:22		X
L34445-02	12/28/16 15:56		X
L34445-03	12/28/16 18:31		X
L34445-04	12/28/16 21:06		X
L34446-01	12/28/16 23:41		X
L34446-02	12/29/16 02:15		X
L34446-03	12/29/16 04:50		X
L34446-04	12/29/16 07:25		X
L34446-05	12/29/16 09:59		X

Monsanto Company
Project ID: L34446

Soil Preparation

WG415229 **Air Dry**

Sample	Date	SCN	SP AIRDRY
L34425-01	12/27/16 09:00		X
L34446-06	12/27/16 11:43		X
L34446-07	12/27/16 14:26		X
L34446-08	12/27/16 17:10		X
L34446-09	12/27/16 19:53		X
L34545-01	12/27/16 22:36		X
L34545-02	12/28/16 01:20		X
L34545-03	12/28/16 04:03		X
L34545-04	12/28/16 06:46		X
L34635-03	12/28/16 09:30		X
L34666-01	12/28/16 12:13		X
L34672-01	12/28/16 14:56		X
L34672-02	12/28/16 17:40		X
L34672-03	12/28/16 20:23		X
L34672-04	12/28/16 23:06		X
L34672-05	12/29/16 01:50		X
L34672-06	12/29/16 04:33		X
L34672-07	12/29/16 07:16		X
L34672-08	12/29/16 10:00		X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L34446

Soil Analysis

WG415419 **Percent Solids**

Sample	Date	SCN	ERCENT MOISTUR	PERCENT SOLID
WG415419PBS	12/29/16 11:00			X
L34305-01	12/29/16 12:16			X
L34305-01DUP	12/29/16 13:33		X	X
L34305-02	12/29/16 14:50			X
L34305-03	12/29/16 16:07			X
L34305-04	12/29/16 17:24			X
L34425-01	12/29/16 18:41			X
L34445-01	12/29/16 19:57			X
L34445-02	12/29/16 21:14			X
L34445-03	12/29/16 22:31			X
L34445-04	12/29/16 23:48			X
L34446-01	12/30/16 01:05			X
L34446-02	12/30/16 02:22			X
L34446-03	12/30/16 03:39			X
L34446-04	12/30/16 04:55			X
L34446-05	12/30/16 06:12			X
L34446-06	12/30/16 07:29			X
L34446-07	12/30/16 08:46			X
L34446-08	12/30/16 10:03			X
L34446-09	12/30/16 11:20			X

Monsanto Company
Project ID: L34446

Soil Preparation

WG415621 **Soil Prep Sieve**

Sample	Date	SCN	SP SIEVE2000	SP SIEVE250
L34445-01	01/04/17 11:00		X	X
L34445-02	01/04/17 12:05		X	X
L34445-03	01/04/17 13:10		X	X
L34445-04	01/04/17 14:16		X	X
L34446-01	01/04/17 15:21		X	X
L34446-02	01/04/17 16:26		X	X
L34446-03	01/04/17 17:32		X	X
L34446-04	01/04/17 18:37		X	X
L34446-05	01/04/17 19:43		X	X
L34446-06	01/04/17 20:48		X	X
L34446-07	01/04/17 21:53		X	X
L34446-08	01/04/17 22:59		X	X
L34446-09	01/05/17 00:04		X	X
L34674-01	01/05/17 01:09		X	X
L34674-02	01/05/17 02:15		X	X
L34674-03	01/05/17 03:20		X	X
L34674-04	01/05/17 04:26		X	X
L34674-05	01/05/17 05:31		X	X
L34674-06	01/05/17 06:36		X	X
L34674-07	01/05/17 07:42		X	X
L34674-08	01/05/17 08:47		X	X
L34674-09	01/05/17 09:53		X	X
L34674-10	01/05/17 10:58		X	X
L34674-11	01/05/17 12:03		X	X
L34674-12	01/05/17 13:09		X	X
L34674-13	01/05/17 14:14		X	X

Monsanto Company

Project ID: L34446

Soil Preparation

WG415621 **Soil Prep Sieve**

Sample	Date	SCN	SP SIEVE2000	SP SIEVE250
L34674-14	01/05/17 15:19		X	X

Monsanto Company

Project ID: L34446

Soil Preparation

WG415785 **3050 ICP ICPMS**

Sample	Date	SCN	DILUTION
WG415785PBS	01/06/17 10:00		X
WG415785LCSS1	01/06/17 14:44		X
WG415785LCSSD1	01/06/17 19:28		X
WG415785LCSS2	01/07/17 00:12		X
WG415785LCSSD2	01/07/17 04:57		X
L34445-01	01/07/17 09:41		X
L34445-02	01/07/17 14:25		X
L34445-03	01/07/17 19:09		X
L34445-04	01/07/17 23:54		X
L34445-04MS	01/08/17 04:38		X
L34445-04MSD	01/08/17 09:22		X
L34446-01	01/08/17 14:07		X
L34446-02	01/08/17 18:51		X
L34446-03	01/08/17 23:35		X
L34446-04	01/09/17 04:19		X
L34446-05	01/09/17 09:04		X
L34446-06	01/09/17 13:48		X
L34446-07	01/09/17 18:32		X
L34446-07MS	01/09/17 23:17		X
L34446-07MSD	01/10/17 04:01		X
L34446-08	01/10/17 08:45		X
L34446-09	01/10/17 13:29		X

Monsanto Company

Project ID: L34446

Metals Analysis

WG415985 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Mo	Se	U
WG415985ICV	01/10/17 19:52	MS161128-3	X	X	X	X	X
WG415985ICB	01/10/17 19:54		X	X	X	X	X
WG415985ICSA	01/10/17 19:56		X	X		X	X
WG415985ICSAB	01/10/17 19:58	MS161201-10	X	X	X	X	X
WG415785PBS	01/10/17 20:02		X	X	X	X	X
WG415785LCSS1	01/10/17 20:04	PCN52516	X	X	X	X	X
WG415785LCSSD1	01/10/17 20:06	PCN52516	X	X	X	X	X
L34445-01	01/10/17 20:08		X	X	X	X	X
L34445-02	01/10/17 20:10		X	X	X	X	X
L34445-03	01/10/17 20:12		X	X	X	X	X
L34445-04	01/10/17 20:14		X	X	X	X	X
WG415985CCV1	01/10/17 20:16	MS161201-14	X	X	X	X	X
WG415985CCB1	01/10/17 20:18		X	X	X	X	X
L34446-01	01/10/17 20:20		X	X		X	X
L34446-02	01/10/17 20:22		X	X		X	X
L34446-03	01/10/17 20:24		X	X		X	X
L34446-04	01/10/17 20:26		X	X		X	X
L34446-05	01/10/17 20:28		X	X		X	X
L34446-06	01/10/17 20:30		X	X		X	X
L34446-07	01/10/17 20:32		X	X		X	X
L34446-07MS	01/10/17 20:34	MS161205-2	X	X	X	X	X
L34446-07MSD	01/10/17 20:36	MS161205-2	X	X	X	X	X
L34446-08	01/10/17 20:38		X	X		X	X
WG415985CCV2	01/10/17 20:40	MS161201-14	X	X	X	X	X
WG415985CCB2	01/10/17 20:42		X	X	X	X	X
L34446-09	01/10/17 20:44		X	X		X	X

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Run Log by Workgroup

Monsanto Company

Project ID: L34446

Metals Analysis

WG415985 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Mo	Se	U
L34446-09SDL	01/10/17 20:46		X	X	X	X	X
WG415985CCV3	01/10/17 20:48	MS161201-14	X	X	X	X	X
WG415985CCB3	01/10/17 20:50		X	X	X	X	X

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Run Log by Workgroup

Monsanto Company

Project ID: L34446

Soil Analysis

WG416048 **Neutralization Potential**

Sample	Date	SCN	CACO3	FIZZ TEST	PH
WG416048ICV	01/11/17 11:06	PCN50759			X
WG416048PBS	01/11/17 11:28		X		
WG416048LCSS	01/11/17 11:50	PCN49919	X		
L34446-01	01/11/17 12:12		X		
L34446-01MS	01/11/17 12:34	SI141024-2	X	X	
L34446-01DUP	01/11/17 12:56		X	X	
L34446-03	01/11/17 13:18		X		
L34446-05	01/11/17 13:41		X		
L34446-06	01/11/17 14:03		X		
L34446-07	01/11/17 14:25		X		
L34446-08	01/11/17 14:47		X		
WG416048CCV1	01/11/17 15:09	PCN50759			X
L34446-09	01/11/17 15:31		X		
L34674-11	01/11/17 15:53		X		
L34674-12	01/11/17 16:15		X		
L34674-13	01/11/17 16:37		X		
WG416048CCV2	01/11/17 16:59	PCN50759			X

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Run Log by Workgroup

Monsanto Company

Project ID: L34446

Soil Analysis

WG416091 **Neutralization Potential**

Sample	Date	SCN	CACO3	FIZZ TEST	PH
WG416091ICV	01/13/17 09:54	PCN50759			X
WG416091PBS	01/13/17 10:12		X		
WG416091LCSS	01/13/17 10:30	PCN49912	X		
L34446-02	01/13/17 10:48		X		
L34446-02MS	01/13/17 11:06	SI141024-1	X	X	
L34446-02DUP	01/13/17 11:24		X	X	
L34446-04	01/13/17 11:42		X		
WG416091CCV	01/13/17 12:00	PCN50759			X

Monsanto Company

Project ID: L34446

Soil Analysis

WG416138 **Sulfur forms**

Sample	Date	SCN	JLFUR HCL RESIDU	LFUR HNO3 RESIDU	R ORGANIC RESI	FUR PYRITIC SULF	SULFUR SULFATE	SULFUR TOTAL	SULFUR MINUS SU
L34446-04	01/12/17 16:35		X	X	X	X	X	X	X
L34446-02	01/12/17 16:35		X	X	X	X	X	X	X
L34446-01MS	01/12/17 16:35	PCN49456						X	
L34446-01DUP	01/12/17 16:35				X	X	X	X	X
WG416138PBS	01/12/17 16:35							X	
WG416138LCSS	01/12/17 16:35	PCN51462						X	
L34446-03	01/12/17 16:35		X	X	X	X	X	X	X
L34674-13	01/12/17 16:35		X	X	X	X	X	X	X
L34446-05	01/12/17 16:35		X	X	X	X	X	X	X
L34446-06	01/12/17 16:35		X	X	X	X	X	X	X
L34446-07	01/12/17 16:35		X	X	X	X	X	X	X
L34446-08	01/12/17 16:35		X	X	X	X	X	X	X
L34446-09	01/12/17 16:35		X	X	X	X	X	X	X
L34674-11	01/12/17 16:35		X	X	X	X	X	X	X
L34674-12	01/12/17 16:35		X	X	X	X	X	X	X
L34446-01	01/12/17 16:35		X	X	X	X	X	X	X

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID: L34446
Date Received: 12/06/2016 14:17
Received By:
Date Printed: 12/6/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	X		

A change was made in the Copy of Report to: and Remarks section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA25203	5.6	NA	14	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID:	L34446
Date Received:	12/06/2016 14:17
Received By:	
Date Printed:	12/6/2016

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. 34446

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com

Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc

E-mail: leah@wolfmartininc.com, Rbenedetti@stratageotech.com
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com

Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: R.Benedetti **Sampler's Site Information** **State** Idaho **Zip code** 83276 **Time Zone** -7:00

***Sampler's Signature:** Rocky Benedetti

*I attest to the authenticity and validity of this sample. I understand that mislabeling the time/date/location, or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See attached list #1	See attached list #2						
SB-01_02GT (1.5-6.5)	9-8-16/9-9-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
SB-07GT (4-21)	9-21-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
SB-03_TP-3 (1-5)	9-10-16/8-24-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
TP-6 (7-10)	8-26-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
TP-8 (3.5-13)	8-24-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
TP-9 (7-14)	8-24-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
TP-12 (7-9)	8-25-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
TP-14 (3-7)	8-25-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
TP-20 (12-14)	8-25-16	SO	1 ea	[ ]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Chain of custody 1 of 2, Lists #1 and #2 of required testing for all samples are attached.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Rocky Benedetti	12-2-16 2:00 PM	[illegible]	12-6-16 [illegible]

FRMAD050.03.14.13 White - Return with sample. Yellow - Retain for your records.

L34446 Chain of Custody

List # 2

ABA/Whole Rock

Tests/Methods
• Whole Rock Analysis (EPA SW846 3050B / EPA 6020/6010B ICP/ICP-MS Analysis) As, Cd, Se, and U • Acid-Base Accounting (Modified Sobek) • Synthetic Precipitation Leaching Procedure – SPLP (EPA 1312 / EPA 6020/6010B ICP/ICP-MS) \As, Cd, and Se

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

January 20, 2017

Report to:
Molly Prickett
Monsanto Company
1853 Hwy 34 N
Soda Springs, ID 83276

Bill to:
Molly Pricket
Monsanto Company
1853 Highway 34
Soda Springs, ID 83276

cc: Leah Wolf Martin, Rocky Benedetti

Project ID: 4512184569
ACZ Project ID: L34674

Molly Prickett:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 16, 2016. This project has been assigned to ACZ's project number, L34674. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L34674. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after February 19, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

MONSANTO COMPANY

Level IV Data Package – L34674
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        ii. LCSW, LFB, LRB, PBW, SIC, PQV results
        iii. Matrix/Analytical Spike Recoveries
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    b. Chain of Custody – Copy

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Summary

ACZ Project ID: ***L34674***

SAMPLE ID	LAB NO.	SAMPLE DATE	SAMPLE TIME
SB-06GT (1.5-10)	L34674-01	9/13/2016	0:00
SB-07GT (0-4)	L34674-02	9/21/2016	0:00
SB-09GT (8-12)	L34674-03	9/21/2016	0:00
SB-09GT (18-22)	L34674-04	9/21/2016	0:00
SB-12GT (0-27)	L34674-05	9/22/2016	0:00
SB-13AL (0-25)	L34674-06	9/13/2016	0:00
SB-14AL (0-15)	L34674-07	9/23/2016	0:00
SB-14AL (15-35)	L34674-08	9/24/2016	0:00
SB-15AL (0-25)	L34674-09	9/11/2016	0:00
SB-15AL (25-50)	L34674-10	9/11/2016	0:00
SB-01_02GT (1.5-6.5)-D	L34674-11	9/9/2016	0:00
TP-6 (7-10)-DUPLICATE	L34674-12	8/26/2016	0:00
TP-20 (12-14)-DUPLICATE	L34674-13	8/25/2016	0:00
SB-09GT (8-12-DUPLICATE	L34674-14	9/21/2016	0:00

Monsanto Company

January 20, 2017

Project ID: 4512184569
ACZ Project ID: L34674

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 14 soil samples from Monsanto Company on December 16, 2016. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L34674. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-06GT (1.5-10)

ACZ Sample ID: ***L34674-01***
Date Sampled: *09/13/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	7.2			mg/Kg	0.1	0.5	01/12/17 18:43	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.18	B	*	mg/Kg	0.05	0.3	01/11/17 16:44	gss
Cadmium, total (3050)	M6020 ICP-MS	510	6.77			mg/Kg	0.05	0.3	01/12/17 18:43	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	2.46			meq/L	0.005	0.025	01/11/17 10:39	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	20.1		*	meq/100g	0.435	2.18	01/18/17 11:33	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.633			meq/L	0.017	0.082	01/11/17 10:39	aeb
Molybdenum, total (3050)	M6020 ICP-MS	510	2.9			mg/Kg	0.3	1	01/12/17 18:43	msh
Phosphorus, total (3050)	M6010B ICP	102	6470		*	mg/Kg	10	50	01/11/17 15:33	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.145			meq/L	0.0051	0.0256	01/11/17 10:39	aeb
Selenium, total (3050)	M6020 ICP-MS	510	2.21		*	mg/Kg	0.05	0.1	01/12/17 18:43	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.171			meq/L	0.0087	0.0435	01/11/17 10:39	aeb
Uranium, total (3050)	M6020 ICP-MS	510	4.76			mg/Kg	0.05	0.3	01/12/17 18:43	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.9		*	%	0.1	0.5	01/18/17 1:19	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.4		*	%	0.1	0.5	01/18/17 1:19	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.374		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	20.2		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	2.8		*	%	0.3	1	01/17/17 21:40	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	7.0		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	51.1		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	86.0		*	%	0.1	0.5	12/29/16 12:36	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	0.02	B	*	%	0.01	0.1	01/18/17 13:36	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-06GT (1.5-10)

ACZ Sample ID: ***L34674-01***
Date Sampled: *09/13/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 14:20	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 11:39	bcc
Digestion - Hot Plate	M3050B ICP								01/07/17 8:36	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/07/17 8:36	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 13:11	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 13:07	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:25	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 1:09	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 1:09	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		3	B		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10	3	B	*	mg/Kg	2	5	01/10/17 21:14	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:14	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	1	B	*	mg/Kg	1	5	01/10/17 12:50	spl

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: SB-07GT (0-4)

ACZ Sample ID: ***L34674-02***
Date Sampled: *09/21/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	6.1			mg/Kg	0.1	0.5	01/12/17 18:47	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.20	B	*	mg/Kg	0.05	0.3	01/11/17 16:53	gss
Cadmium, total (3050)	M6020 ICP-MS	510	0.82			mg/Kg	0.05	0.3	01/12/17 18:47	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	0.963			meq/L	0.005	0.025	01/11/17 10:42	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	22.5		*	meq/100g	0.435	2.18	01/18/17 11:42	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.611			meq/L	0.017	0.082	01/11/17 10:42	aeb
Molybdenum, total (3050)	M6020 ICP-MS	510	2.4			mg/Kg	0.3	1	01/12/17 18:47	msh
Phosphorus, total (3050)	M6010B ICP	102	1590		*	mg/Kg	10	50	01/11/17 15:36	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.251			meq/L	0.0051	0.0256	01/11/17 10:42	aeb
Selenium, total (3050)	M6020 ICP-MS	510	0.22			mg/Kg	0.05	0.1	01/13/17 19:07	enb
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.0899			meq/L	0.0087	0.0435	01/11/17 10:42	aeb
Uranium, total (3050)	M6020 ICP-MS	510	0.62			mg/Kg	0.05	0.3	01/12/17 18:47	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.7		*	%	0.1	0.5	01/18/17 4:35	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.4		*	%	0.1	0.5	01/18/17 4:35	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.174		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	19.8		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	3.0		*	%	0.3	1	01/17/17 22:50	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	6.5		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	50.5		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	88.3		*	%	0.1	0.5	12/29/16 14:12	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 14:00	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-07GT (0-4)

ACZ Sample ID: ***L34674-02***
Date Sampled: *09/21/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 15:50	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 12:08	bcc
Digestion - Hot Plate	M3050B ICP								01/07/17 13:08	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/07/17 13:08	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 13:28	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 13:23	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:27	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 2:15	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 2:15	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:15	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:15	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	1	B	*	mg/Kg	1	5	01/10/17 12:52	spl

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: SB-09GT (8-12)

ACZ Sample ID: ***L34674-03***
Date Sampled: *09/21/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	6.9			mg/Kg	0.1	0.5	01/12/17 18:49	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.07	B	*	mg/Kg	0.05	0.3	01/11/17 17:03	gss
Cadmium, total (3050)	M6020 ICP-MS	510	4.29			mg/Kg	0.05	0.3	01/12/17 18:49	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	1.40			meq/L	0.005	0.025	01/11/17 10:45	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	14.6		*	meq/100g	0.435	2.18	01/18/17 11:52	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.563			meq/L	0.017	0.082	01/11/17 10:45	aeb
Molybdenum, total (3050)	M6020 ICP-MS	510	7.9			mg/Kg	0.3	1	01/12/17 18:49	msh
Phosphorus, total (3050)	M6010B ICP	102	4130		*	mg/Kg	10	50	01/11/17 15:40	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.230			meq/L	0.0051	0.0256	01/11/17 10:45	aeb
Selenium, total (3050)	M6020 ICP-MS	510	2.16			mg/Kg	0.05	0.1	01/12/17 18:49	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.304			meq/L	0.0087	0.0435	01/11/17 10:45	aeb
Uranium, total (3050)	M6020 ICP-MS	510	4.96			mg/Kg	0.05	0.3	01/12/17 18:49	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.5		*	%	0.1	0.5	01/18/17 7:51	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.4	B	*	%	0.1	0.5	01/18/17 7:51	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.280		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	20.1		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	0.8	B	*	%	0.3	1	01/18/17 0:00	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	7.3		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	42.6		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	87.5		*	%	0.1	0.5	12/29/16 15:48	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 14:23	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-09GT (8-12)

ACZ Sample ID: ***L34674-03***
Date Sampled: *09/21/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 17:21	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 12:37	bcc
Digestion - Hot Plate	M3050B ICP								01/07/17 17:39	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/07/17 17:39	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 13:44	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 13:40	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:29	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 3:20	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 3:20	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:16	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:16	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10		U	*	mg/Kg	1	5	01/10/17 12:56	spl

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-09GT (18-22)

ACZ Sample ID: ***L34674-04***
Date Sampled: *09/21/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	7.6			mg/Kg	0.1	0.5	01/12/17 18:55	msh
Boron, soluble (Hot Water)	M6010B ICP	5		U	*	mg/Kg	0.05	0.3	01/11/17 17:06	gss
Cadmium, total (3050)	M6020 ICP-MS	510	2.23			mg/Kg	0.05	0.3	01/12/17 18:55	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	1.30			meq/L	0.005	0.025	01/11/17 10:48	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	17.1		*	meq/100g	0.435	2.18	01/18/17 11:55	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.382			meq/L	0.017	0.082	01/11/17 10:48	aeb
Molybdenum, total (3050)	M6020 ICP-MS	510	5.5			mg/Kg	0.3	1	01/12/17 18:55	msh
Phosphorus, total (3050)	M6010B ICP	102	2230		*	mg/Kg	10	50	01/16/17 16:06	gss
Phosphorus, total (3050)	M6010B ICP	102	2220		*	mg/Kg	10	50	01/11/17 15:43	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.0825			meq/L	0.0051	0.0256	01/11/17 10:48	aeb
Selenium, total (3050)	M6020 ICP-MS	510	0.74			mg/Kg	0.05	0.1	01/13/17 19:11	enb
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.241			meq/L	0.0087	0.0435	01/11/17 10:48	aeb
Uranium, total (3050)	M6020 ICP-MS	510	2.76			mg/Kg	0.05	0.3	01/12/17 18:55	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.3	B	*	%	0.1	0.5	01/18/17 11:07	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.3	B	*	%	0.1	0.5	01/18/17 11:07	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.230		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	20.2		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	0.6	B	*	%	0.3	1	01/18/17 3:30	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	7.3		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	55.1		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	83.9		*	%	0.1	0.5	12/29/16 17:24	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 14:46	cra

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-09GT (18-22)

ACZ Sample ID: ***L34674-04***
Date Sampled: *09/21/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 18:52	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 13:06	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/07/17 22:10	bcc
Digestion - Hot Plate	M3050B ICP								01/07/17 22:10	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 14:01	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 13:56	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:31	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 4:26	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 4:26	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:18	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:18	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	1	B	*	mg/Kg	1	5	01/10/17 12:57	spl

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: SB-12GT (0-27)

ACZ Sample ID: ***L34674-05***
Date Sampled: *09/22/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	24.6			mg/Kg	0.1	0.5	01/12/17 18:57	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.07	B	*	mg/Kg	0.05	0.3	01/11/17 17:12	gss
Cadmium, total (3050)	M6020 ICP-MS	505	12.1			mg/Kg	0.05	0.3	01/12/17 18:57	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	2.39			meq/L	0.005	0.025	01/11/17 10:51	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	18.0		*	meq/100g	0.435	2.18	01/18/17 12:02	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.656			meq/L	0.017	0.082	01/11/17 10:51	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	18.7			mg/Kg	0.3	1	01/12/17 18:57	msh
Phosphorus, total (3050)	M6010B ICP	505	21400		*	mg/Kg	50	300	01/16/17 16:16	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.113			meq/L	0.0051	0.0256	01/11/17 10:51	aeb
Selenium, total (3050)	M6020 ICP-MS	505	29.2		*	mg/Kg	0.05	0.1	01/12/17 18:57	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.192			meq/L	0.0087	0.0435	01/11/17 10:51	aeb
Uranium, total (3050)	M6020 ICP-MS	505	16.8			mg/Kg	0.05	0.3	01/12/17 18:57	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.8		*	%	0.1	0.5	01/18/17 14:22	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.2		*	%	0.1	0.5	01/18/17 14:22	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.356		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	20.2		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	2.4		*	%	0.3	1	01/18/17 4:40	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	7.3		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	47.2		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	79.8		*	%	0.1	0.5	12/29/16 19:00	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	0.07	B	*	%	0.01	0.1	01/18/17 15:10	cra

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-12GT (0-27)

ACZ Sample ID: ***L34674-05***
Date Sampled: *09/22/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 20:23	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 13:35	bcc
Digestion - Hot Plate	M3050B ICP								01/08/17 11:45	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/08/17 11:45	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 14:18	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 14:12	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:33	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 5:31	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 5:31	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		4	B		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10	4	B	*	mg/Kg	2	5	01/10/17 21:19	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:19	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	1	B	*	mg/Kg	1	5	01/10/17 12:59	spl

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-13AL (0-25)

ACZ Sample ID: ***L34674-06***
Date Sampled: *09/13/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	5.9			mg/Kg	0.1	0.5	01/12/17 18:59	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.06	B	*	mg/Kg	0.05	0.3	01/11/17 17:16	gss
Cadmium, total (3050)	M6020 ICP-MS	505	4.61			mg/Kg	0.05	0.3	01/12/17 18:59	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	2.59			meq/L	0.005	0.025	01/11/17 11:01	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	9.58		*	meq/100g	0.435	2.18	01/18/17 12:05	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.778			meq/L	0.017	0.082	01/11/17 11:01	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	4.3			mg/Kg	0.3	1	01/12/17 18:59	msh
Phosphorus, total (3050)	M6010B ICP	505	17500		*	mg/Kg	50	300	01/16/17 16:19	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.167			meq/L	0.0051	0.0256	01/11/17 11:01	aeb
Selenium, total (3050)	M6020 ICP-MS	505	3.29		*	mg/Kg	0.05	0.1	01/12/17 18:59	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.268			meq/L	0.0087	0.0435	01/11/17 11:01	aeb
Uranium, total (3050)	M6020 ICP-MS	505	15.2			mg/Kg	0.05	0.3	01/12/17 18:59	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.6		*	%	0.1	0.5	01/18/17 17:38	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.4		*	%	0.1	0.5	01/18/17 17:38	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.402		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	20.2		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	2.8		*	%	0.3	1	01/18/17 5:50	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	6.9		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	32.1		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	90.1		*	%	0.1	0.5	12/29/16 20:36	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	0.02	B	*	%	0.01	0.1	01/18/17 15:33	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-13AL (0-25)

ACZ Sample ID: ***L34674-06***
Date Sampled: *09/13/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 21:53	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 14:04	bcc
Digestion - Hot Plate	M3050B ICP								01/08/17 16:16	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/08/17 16:16	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 14:35	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 14:28	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:35	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 6:36	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 6:36	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:20	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:20	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10		U	*	mg/Kg	1	5	01/10/17 13:00	spl

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-14AL (0-15)

ACZ Sample ID: ***L34674-07***
Date Sampled: *09/23/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	6.7			mg/Kg	0.1	0.5	01/12/17 19:01	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.11	B	*	mg/Kg	0.05	0.3	01/11/17 17:19	gss
Cadmium, total (3050)	M6020 ICP-MS	510	3.13			mg/Kg	0.05	0.3	01/12/17 19:01	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	0.996			meq/L	0.005	0.025	01/11/17 11:04	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	19.5		*	meq/100g	0.435	2.18	01/18/17 12:08	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	1.89			meq/L	0.017	0.082	01/11/17 11:04	aeb
Molybdenum, total (3050)	M6020 ICP-MS	510	1.9			mg/Kg	0.3	1	01/12/17 19:01	msh
Phosphorus, total (3050)	M6010B ICP	102	4510		*	mg/Kg	10	50	01/11/17 16:08	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.0456			meq/L	0.0051	0.0256	01/11/17 11:04	aeb
Selenium, total (3050)	M6020 ICP-MS	510	0.68			mg/Kg	0.05	0.1	01/13/17 19:14	enb
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.330			meq/L	0.0087	0.0435	01/11/17 11:04	aeb
Uranium, total (3050)	M6020 ICP-MS	510	3.54			mg/Kg	0.05	0.3	01/12/17 19:01	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.1		*	%	0.1	0.5	01/18/17 20:54	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.2	B	*	%	0.1	0.5	01/18/17 20:54	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.329		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	20.2		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	0.5	B	*	%	0.3	1	01/18/17 7:00	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	8.0		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	35.1		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	83.6		*	%	0.1	0.5	12/29/16 22:12	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 15:56	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-14AL (0-15)

ACZ Sample ID: ***L34674-07***
Date Sampled: *09/23/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/28/16 23:24	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 14:33	bcc
Digestion - Hot Plate	M3050B ICP								01/08/17 20:47	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/08/17 20:47	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 14:52	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 14:45	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:37	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 7:42	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 7:42	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:21	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:21	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10		U	*	mg/Kg	1	5	01/10/17 13:02	spl

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: SB-14AL (15-35)

ACZ Sample ID: ***L34674-08***
Date Sampled: *09/24/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	11.1			mg/Kg	0.1	0.5	01/12/17 19:08	msh
Boron, soluble (Hot Water)	M6010B ICP	5		U	*	mg/Kg	0.05	0.3	01/11/17 17:22	gss
Cadmium, total (3050)	M6020 ICP-MS	505	3.75			mg/Kg	0.05	0.3	01/12/17 19:08	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	2.15			meq/L	0.005	0.025	01/11/17 11:07	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	17.8		*	meq/100g	0.435	2.18	01/18/17 12:11	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	1.25			meq/L	0.017	0.082	01/11/17 11:07	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	2.0			mg/Kg	0.3	1	01/12/17 19:08	msh
Phosphorus, total (3050)	M6010B ICP	101	6560		*	mg/Kg	10	50	01/11/17 16:11	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.0936			meq/L	0.0051	0.0256	01/11/17 11:07	aeb
Selenium, total (3050)	M6020 ICP-MS	505	1.58		*	mg/Kg	0.05	0.1	01/12/17 19:08	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.572			meq/L	0.0087	0.0435	01/11/17 11:07	aeb
Uranium, total (3050)	M6020 ICP-MS	505	4.00			mg/Kg	0.05	0.3	01/12/17 19:08	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.8		*	%	0.1	0.5	01/19/17 0:10	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.2	B	*	%	0.1	0.5	01/19/17 0:10	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.415		*	mmhos/cm	0.001	0.01	01/10/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Temperature		1	20.1		*	C	0.1	0.1	01/10/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	0.4	B	*	%	0.3	1	01/18/17 8:10	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
pH		1	7.7		*	units	0.1	0.1	01/10/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/10/17 0:00	rbt
Sat Pcnt		1	43.8		*	%	0.01	0.1	01/10/17 0:00	rbt
Solids, Percent	D2216-80	1	82.7		*	%	0.1	0.5	12/29/16 23:48	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 16:20	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-14AL (15-35)

ACZ Sample ID: ***L34674-08***
Date Sampled: *09/24/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 0:55	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 15:02	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/09/17 10:21	bcc
Digestion - Hot Plate	M3050B ICP								01/09/17 10:21	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 15:09	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 15:01	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:39	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 8:47	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 8:47	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:23	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:23	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	1	B	*	mg/Kg	1	5	01/10/17 13:04	spl

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-15AL (0-25)

ACZ Sample ID: ***L34674-09***
Date Sampled: *09/11/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	10.3			mg/Kg	0.1	0.5	01/12/17 19:10	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.13	B	*	mg/Kg	0.05	0.3	01/11/17 17:25	gss
Cadmium, total (3050)	M6020 ICP-MS	505	1.38			mg/Kg	0.05	0.3	01/12/17 19:10	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	1.28			meq/L	0.005	0.025	01/11/17 11:11	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	10.3		*	meq/100g	0.435	2.18	01/18/17 12:14	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.413			meq/L	0.017	0.082	01/11/17 11:11	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	3.1			mg/Kg	0.3	1	01/12/17 19:10	msh
Phosphorus, total (3050)	M6010B ICP	505	3820		*	mg/Kg	50	300	01/16/17 16:25	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.0812			meq/L	0.0051	0.0256	01/11/17 11:11	aeb
Selenium, total (3050)	M6020 ICP-MS	505	3.57		*	mg/Kg	0.05	0.1	01/12/17 19:10	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.502			meq/L	0.0087	0.0435	01/11/17 11:11	aeb
Uranium, total (3050)	M6020 ICP-MS	505	4.25			mg/Kg	0.05	0.3	01/12/17 19:10	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.9		*	%	0.1	0.5	01/19/17 3:26	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.8		*	%	0.1	0.5	01/19/17 3:26	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.235		*	mmhos/cm	0.001	0.01	01/11/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/11/17 0:00	rbt
Temperature		1	20.3		*	C	0.1	0.1	01/11/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	1.4		*	%	0.3	1	01/18/17 9:20	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/11/17 0:00	rbt
pH		1	6.9		*	units	0.1	0.1	01/11/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/11/17 0:00	rbt
Sat Pcnt		1	32.6		*	%	0.01	0.1	01/11/17 0:00	rbt
Solids, Percent	D2216-80	1	93.0		*	%	0.1	0.5	12/30/16 1:24	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 16:43	cra

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: SB-15AL (0-25)

ACZ Sample ID: ***L34674-09***
Date Sampled: *09/11/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 2:26	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 15:31	bcc
Digestion - Hot Plate	M3050B ICP								01/09/17 14:53	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/09/17 14:53	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 15:26	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 15:17	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:41	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 9:53	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 9:53	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:24	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:24	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	3	B	*	mg/Kg	1	5	01/10/17 13:07	spl

Monsanto Company
Project ID: 4512184569
Sample ID: SB-15AL (25-50)

ACZ Sample ID: ***L34674-10***
Date Sampled: *09/11/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	4.8			mg/Kg	0.1	0.5	01/12/17 19:12	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.19	B	*	mg/Kg	0.05	0.3	01/11/17 17:28	gss
Cadmium, total (3050)	M6020 ICP-MS	505	0.74			mg/Kg	0.05	0.3	01/12/17 19:12	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	1.29			meq/L	0.005	0.025	01/11/17 11:14	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	5.77		*	meq/100g	0.435	2.18	01/18/17 12:18	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.392			meq/L	0.017	0.082	01/11/17 11:14	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	1.2			mg/Kg	0.3	1	01/12/17 19:12	msh
Phosphorus, total (3050)	M6010B ICP	101	2460		*	mg/Kg	10	50	01/11/17 16:17	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.0959			meq/L	0.0051	0.0256	01/11/17 11:14	aeb
Selenium, total (3050)	M6020 ICP-MS	505	4.50		*	mg/Kg	0.05	0.1	01/12/17 19:12	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.445			meq/L	0.0087	0.0435	01/11/17 11:14	aeb
Uranium, total (3050)	M6020 ICP-MS	505	3.23			mg/Kg	0.05	0.3	01/12/17 19:12	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.0		*	%	0.1	0.5	01/19/17 6:42	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.9		*	%	0.1	0.5	01/19/17 6:42	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.239		*	mmhos/cm	0.001	0.01	01/11/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/11/17 0:00	rbt
Temperature		1	20.0		*	C	0.1	0.1	01/11/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	1.3		*	%	0.3	1	01/18/17 10:30	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/11/17 0:00	rbt
pH		1	7.0		*	units	0.1	0.1	01/11/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/12/17 0:00	rbt
Sat Pcnt		1	27.9		*	%	0.01	0.1	01/12/17 0:00	rbt
Solids, Percent	D2216-80	1	93.3		*	%	0.1	0.5	12/30/16 3:00	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	0.01	B	*	%	0.01	0.1	01/18/17 17:06	cra

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-15AL (25-50)

ACZ Sample ID: ***L34674-10***
Date Sampled: *09/11/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 3:56	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 16:01	bcc
Digestion - Hot Plate	M3050B ICP								01/09/17 19:24	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/09/17 19:24	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 15:43	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 15:33	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:43	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 10:58	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 10:58	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:25	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:25	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10	1	B	*	mg/Kg	1	5	01/10/17 13:09	spl

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: SB-01_02GT (1.5-6.5)-D

ACZ Sample ID: ***L34674-11***
Date Sampled: *09/09/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	6.5			mg/Kg	0.1	0.5	01/12/17 19:14	msh
Cadmium, total (3050)	M6020 ICP-MS	510	0.64			mg/Kg	0.05	0.3	01/12/17 19:14	msh
Selenium, total (3050)	M6020 ICP-MS	510	0.20			mg/Kg	0.05	0.1	01/13/17 19:30	enb
Uranium, total (3050)	M6020 ICP-MS	510	0.79			mg/Kg	0.05	0.3	01/12/17 19:14	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	01/20/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		85.0			t CaCO3/Kt	1	5	01/20/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		85.0			t CaCO3/Kt			01/20/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	8.5		*	%	0.1	0.5	01/11/17 15:53	bcc
Solids, Percent	D2216-80	1	86.0		*	%	0.1	0.5	12/30/16 4:36	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 5:27	tjv
Digestion - Hot Plate	M3050B ICP-MS								01/09/17 23:55	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 12:03	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 12:03	tjv

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: TP-6 (7-10)-DUPLICATE

ACZ Sample ID: ***L34674-12***
Date Sampled: *08/26/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	12.9			mg/Kg	0.1	0.5	01/12/17 19:21	msh
Cadmium, total (3050)	M6020 ICP-MS	510	2.43		*	mg/Kg	0.05	0.3	01/12/17 19:21	msh
Selenium, total (3050)	M6020 ICP-MS	510	0.50			mg/Kg	0.05	0.1	01/13/17 19:33	enb
Uranium, total (3050)	M6020 ICP-MS	510	1.24		*	mg/Kg	0.05	0.3	01/12/17 19:21	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	01/20/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		20.0			t CaCO3/Kt	1	5	01/20/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		20.0			t CaCO3/Kt			01/20/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	2.0		*	%	0.1	0.5	01/11/17 16:15	bcc
Solids, Percent	D2216-80	1	80.1		*	%	0.1	0.5	12/30/16 6:12	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 6:58	tjv
Digestion - Hot Plate	M3050B ICP-MS								01/10/17 4:27	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 13:09	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 13:09	tjv

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-20 (12-14)-DUPLICATE

ACZ Sample ID: ***L34674-13***
Date Sampled: *08/25/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	6.4			mg/Kg	0.1	0.5	01/12/17 19:23	msh
Cadmium, total (3050)	M6020 ICP-MS	505	1.33			mg/Kg	0.05	0.3	01/12/17 19:23	msh
Selenium, total (3050)	M6020 ICP-MS	505	0.53			mg/Kg	0.05	0.1	01/13/17 19:36	enb
Uranium, total (3050)	M6020 ICP-MS	505	1.69			mg/Kg	0.05	0.3	01/12/17 19:23	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		7.81			t CaCO3/Kt	0.31	3.1	01/20/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		233			t CaCO3/Kt	1	5	01/20/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		225			t CaCO3/Kt			01/20/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	23.3		*	%	0.1	0.5	01/11/17 16:37	bcc
Solids, Percent	D2216-80	1	92.3		*	%	0.1	0.5	12/30/16 7:48	rbt
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.17		*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Organic Residual		1		U	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Pyritic Sulfide		1	0.17		*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Sulfate		1	0.08	B	*	%	0.01	0.1	01/12/17 0:00	cra
Sulfur Total		1	0.25		*	%	0.01	0.1	01/12/17 0:00	cra
Total Sulfur minus Sulfate		1	0.17		*	%	0.01	0.1	01/12/17 0:00	cra

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 8:29	tjv
Digestion - Hot Plate	M3050B ICP-MS								01/10/17 8:58	bcc
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 14:14	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 14:14	tjv

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-09GT (8-12-DUPLICATE

ACZ Sample ID: ***L34674-14***
Date Sampled: *09/21/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	6.3			mg/Kg	0.1	0.5	01/12/17 19:26	msh
Boron, soluble (Hot Water)	M6010B ICP	5	0.09	B	*	mg/Kg	0.05	0.3	01/11/17 17:32	gss
Cadmium, total (3050)	M6020 ICP-MS	505	3.87			mg/Kg	0.05	0.3	01/12/17 19:26	msh
Calcium, soluble (Sat. Paste)	M6010B ICP	1	1.35			meq/L	0.005	0.025	01/11/17 11:17	aeb
Cation Exchange Capacity (CEC)	USDA No. 60 (19)	20	13.4		*	meq/100g	0.435	2.18	01/18/17 12:21	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	1	0.539			meq/L	0.017	0.082	01/11/17 11:17	aeb
Molybdenum, total (3050)	M6020 ICP-MS	505	6.0			mg/Kg	0.3	1	01/12/17 19:26	msh
Phosphorus, total (3050)	M6010B ICP	101	4330		*	mg/Kg	10	50	01/11/17 16:20	gss
Potassium, soluble (Sat. Paste)	M6010B ICP	1	0.219			meq/L	0.0051	0.0256	01/11/17 11:17	aeb
Selenium, total (3050)	M6020 ICP-MS	505	3.01		*	mg/Kg	0.05	0.1	01/12/17 19:26	msh
Sodium, soluble (Sat. Paste)	M6010B ICP	1	0.307			meq/L	0.0087	0.0435	01/11/17 11:17	aeb
Uranium, total (3050)	M6020 ICP-MS	505	5.16			mg/Kg	0.05	0.3	01/12/17 19:26	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.6		*	%	0.1	0.5	01/19/17 9:58	cra
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.5		*	%	0.1	0.5	01/19/17 9:58	cra
Conductivity @25C	SM2510B									
Conductivity		1	0.242		*	mmhos/cm	0.001	0.01	01/11/17 0:00	rbt
Max Particle Size		1	2000		*	um			01/11/17 0:00	rbt
Temperature		1	20.2		*	C	0.1	0.1	01/11/17 0:00	rbt
Organic Matter	USDA No.60 - Method 24	1	0.9	B	*	%	0.3	1	01/18/17 11:40	bcc
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			01/11/17 0:00	rbt
pH		1	7.5		*	units	0.1	0.1	01/11/17 0:00	rbt
Saturation Percent	USDA No. 60 (2)									
Max Particle Size		1	2000		*	um			01/11/17 0:00	rbt
Sat Pcnt		1	81.2		*	%	0.01	0.1	01/11/17 0:00	rbt
Solids, Percent	D2216-80	1	87.7		*	%	0.1	0.5	12/30/16 9:24	rbt
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1		U	*	%	0.01	0.1	01/18/17 17:30	cra

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-09GT (8-12-DUPLICATE

ACZ Sample ID: ***L34674-14***
Date Sampled: *09/21/16 00:00*
Date Received: *12/16/16*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/29/16 9:59	tjv
Cation Exchange Capacity Extraction	USDA No. 60 (19)								01/16/17 16:30	bcc
Digestion - Hot Plate	M3050B ICP-MS								01/10/17 13:30	bcc
Digestion - Hot Plate	M3050B ICP								01/10/17 13:30	bcc
Hot Water Extraction	ASA No. 9 M80-3, M25-9								01/10/17 15:59	bcc
Potassium Chloride Extraction	ASA No. 9 33-3.2.2								01/09/17 15:50	bcc
Saturated Paste Extraction	USDA No. 60 (2)								01/09/17 14:45	rbt
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								01/05/17 15:19	tjv
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2								01/05/17 15:19	tjv

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2			U		mg/Kg	2	5	01/20/17 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	2	5	01/10/17 21:31	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	10		U	*	mg/Kg	1	5	01/10/17 21:31	pjb
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	10		U	*	mg/Kg	1	5	01/10/17 13:13	spl

** Please refer to Qualifier Reports for details.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Monsanto Company

ACZ Project ID: ***L34674***

Arsenic, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415986													
WG415986ICV	ICV	01/12/17 18:27	MS161128-3	.05		.05012	mg/L	100	90	110			
WG415986ICB	ICB	01/12/17 18:29				U	mg/L		-0.0006	0.0006			
WG415986ICSA	ICSA	01/12/17 18:31				U	mg/L		-0.001	0.001			
WG415986ICSAB	ICSAB	01/12/17 18:33	MS161201-10	.02004		.02068	mg/L	103	80	120			
WG415792PBS	PBS	01/12/17 18:37				U	mg/Kg		-0.3	0.3			
WG415792LCSS1	LCSS	01/12/17 18:39	PCN52516	145		145	mg/Kg		115	176			
WG415792LCSSD1	LCSSD	01/12/17 18:41	PCN52516	145		142.8	mg/Kg		115	176	2	20	
L34674-01SDL	SDL	01/12/17 18:45			7.2	7.45	mg/Kg				3	10	
WG415986CCV1	CCV	01/12/17 18:51	MS161201-14	.1002		.10449	mg/L	104	90	110			
WG415986CCB1	CCB	01/12/17 18:53				U	mg/L		-0.0006	0.0006			
L34674-07MS	MS	01/12/17 19:03	MS161205-2	25.551	6.7	32.74	mg/Kg	102	75	125			
L34674-07MSD	MSD	01/12/17 19:06	MS161205-2	25.551	6.7	32.62	mg/Kg	101	75	125	0	20	
WG415986CCV2	CCV	01/12/17 19:16	MS161201-14	.1002		.10106	mg/L	101	90	110			
WG415986CCB2	CCB	01/12/17 19:19				U	mg/L		-0.0006	0.0006			
WG415986CCV3	CCV	01/12/17 19:28	MS161201-14	.1002		.10234	mg/L	102	90	110			
WG415986CCB3	CCB	01/12/17 19:30				U	mg/L		-0.0006	0.0006			

Boron, soluble (Hot Water) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416030													
WG416030ICV	ICV	01/11/17 16:09	II161209-1	2		1.985	mg/L	99	90	110			
WG416030ICB	ICB	01/11/17 16:12				U	mg/L		-0.03	0.03			
WG416030PQV	PQV	01/11/17 16:15	II161228-3	.05005		.055	mg/L	110	70	130			
WG416030ICSAB	ICSAB	01/11/17 16:18	II161031-5	.5005		.478	mg/L	96	80	120			
WG415942PBS	PBS	01/11/17 16:25				U	mg/Kg		-0.15	0.15			
L34445-01DUP	DUP	01/11/17 16:31			U	.057	mg/Kg				200	20	RA
L34674-01AS	AS	01/11/17 16:47	II170109-2	2.5025	.18	2.605	mg/Kg	97	75	125			
L34674-01ASD	ASD	01/11/17 16:50	II170109-2	2.5025	.18	2.658	mg/Kg	99	75	125	2	20	
WG416030CCV1	CCV	01/11/17 16:57	II161227-1	1		1.017	mg/L	102	90	110			
WG416030CCB1	CCB	01/11/17 17:00				U	mg/L		-0.03	0.03			
L34674-04SDL	SDL	01/11/17 17:09			U	U	mg/Kg					10	
WG416030CCV2	CCV	01/11/17 17:35	II161227-1	1		.974	mg/L	97	90	110			
WG416030CCB2	CCB	01/11/17 17:38				U	mg/L		-0.03	0.03			

Monsanto Company

ACZ Project ID: ***L34674***

Cadmium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415986													
WG415986ICV	ICV	01/12/17 18:27	MS161128-3	.05		.04958	mg/L	99	90	110			
WG415986ICB	ICB	01/12/17 18:29				U	mg/L		-0.0003	0.0003			
WG415986ICSA	ICSA	01/12/17 18:31				U	mg/L		-0.0005	0.0005			
WG415986ICSAB	ICSAB	01/12/17 18:33	MS161201-10	.02002		.01825	mg/L	91	80	120			
WG415792PBS	PBS	01/12/17 18:37				U	mg/Kg		-0.15	0.15			
WG415792LCSS1	LCSS	01/12/17 18:39	PCN52516	87.6		81.19	mg/Kg		72.4	103			
WG415792LCSSD1	LCSSD	01/12/17 18:41	PCN52516	87.6		81.32	mg/Kg		72.4	103	0	20	
L34674-01SDL	SDL	01/12/17 18:45			6.77	6.58	mg/Kg				3	10	
WG415986CCV1	CCV	01/12/17 18:51	MS161201-14	.1001		.09547	mg/L	95	90	110			
WG415986CCB1	CCB	01/12/17 18:53				.00019	mg/L		-0.0003	0.0003			
L34674-07MS	MS	01/12/17 19:03	MS161205-2	25.5255	3.13	26.388	mg/Kg	91	75	125			
L34674-07MSD	MSD	01/12/17 19:06	MS161205-2	25.5255	3.13	27.06	mg/Kg	94	75	125	3	20	
WG415986CCV2	CCV	01/12/17 19:16	MS161201-14	.1001		.09471	mg/L	95	90	110			
WG415986CCB2	CCB	01/12/17 19:19				.0001	mg/L		-0.0003	0.0003			E6
WG415986CCV3	CCV	01/12/17 19:28	MS161201-14	.1001		.09479	mg/L	95	90	110			
WG415986CCB3	CCB	01/12/17 19:30				.0002	mg/L		-0.0003	0.0003			

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416011													
WG416011ICV	ICV	01/11/17 10:07	II161209-1	100		99.4	mg/L	99	90	110			
WG416011ICB	ICB	01/11/17 10:10				U	mg/L		-0.3	0.3			
WG416011PQV	PQV	01/11/17 10:13	II161228-3	0.5		.482	mg/L	96	70	130			
WG416011ICSAB	ICSAB	01/11/17 10:17	II161031-5	250		238	mg/L	95	80	120			
L34445-04DUP	DUP	01/11/17 10:36			0.702	.735	meq/L				5	20	
WG416011CCV1	CCV	01/11/17 10:55	II161227-1	50		49.4	mg/L	99	90	110			
WG416011CCB1	CCB	01/11/17 10:58				U	mg/L		-0.3	0.3			
WG416011CCV2	CCV	01/11/17 11:20	II161227-1	50		50	mg/L	100	90	110			
WG416011CCB2	CCB	01/11/17 11:23				U	mg/L		-0.3	0.3			

Carbon, total (TC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416304													
L34445-01DUP	DUP	01/17/17 12:15			1.3	1.3	%				0	20	
WG416304LCSS	LCSS	01/19/17 13:14	PCN52724	3.75		3.7	%		80	120			
WG416304PBS	PBS	01/19/17 16:30				U	%		-0.3	0.3			

Carbon, total organic (TOC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416304													
L34445-01DUP	DUP	01/17/17 12:15			1.1	1.1	%				0	20	
WG416304PBS	PBS	01/19/17 16:30				U	%		-0.3	0.3			

Monsanto Company

ACZ Project ID: ***L34674***

Cation Exchange Capacity (CEC) USDA No. 60 (19)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416336													
WG416336ICV	ICV	01/18/17 10:58	II170112-1	100		100	mg/L	100	90	110			
WG416336ICB	ICB	01/18/17 11:01				U	mg/L		-0.6	0.6			
WG416336PQV	PQV	01/18/17 11:04	II161228-3	1		1.08	mg/L	108	70	130			
WG416336ICSAB	ICSAB	01/18/17 11:07	II161031-5	25		25.8	mg/L	103	80	120			
WG416214PBS	PBS	01/18/17 11:14				U	meq/100g		-1.31	1.31			
L34445-01DUP	DUP	01/18/17 11:20			18.6	20.1	meq/100g				8	20	
L34674-01AS	AS	01/18/17 11:36	IICECSPIKE	218	20.1	232	meq/100g	97	75	125			
L34674-01ASD	ASD	01/18/17 11:39	IICECSPIKE	218	20.1	232	meq/100g	97	75	125	0	20	
WG416336CCV1	CCV	01/18/17 11:46	II161227-1	50		51.9	mg/L	104	90	110			
WG416336CCB1	CCB	01/18/17 11:49				U	mg/L		-0.6	0.6			
L34674-04SDL	SDL	01/18/17 11:58			17.1	3.5	meq/100g				2	10	
WG416336CCV2	CCV	01/18/17 12:24	II161227-1	50		51.8	mg/L	104	90	110			
WG416336CCB2	CCB	01/18/17 12:27				U	mg/L		-0.6	0.6			

Conductivity @25C SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415921													
L34445-04DUP	DUP	01/10/17 13:21			.125	.123	mmhos/cm				2	20	

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416011													
WG416011ICV	ICV	01/11/17 10:07	II161209-1	100		99.3	mg/L	99	90	110			
WG416011ICB	ICB	01/11/17 10:10				U	mg/L		-0.6	0.6			
WG416011PQV	PQV	01/11/17 10:13	II161228-3	1		1	mg/L	100	70	130			
WG416011ICSAB	ICSAB	01/11/17 10:17	II161031-5	250		246	mg/L	98	80	120			
L34445-04DUP	DUP	01/11/17 10:36			0.655	.677	meq/L				3	20	
WG416011CCV1	CCV	01/11/17 10:55	II161227-1	50		49.5	mg/L	99	90	110			
WG416011CCB1	CCB	01/11/17 10:58				U	mg/L		-0.6	0.6			
WG416011CCV2	CCV	01/11/17 11:20	II161227-1	50		49.7	mg/L	99	90	110			
WG416011CCB2	CCB	01/11/17 11:23				U	mg/L		-0.6	0.6			

Monsanto Company

ACZ Project ID: ***L34674***

Molybdenum, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415986													
WG415986ICV	ICV	01/12/17 18:27	MS161128-3	.01998		.01872	mg/L	94	90	110			
WG415986ICB	ICB	01/12/17 18:29				U	mg/L		-0.0015	0.0015			
WG415986ICSAB	ICSAB	01/12/17 18:33	MS161201-10	1.02502		.95652	mg/L	93	80	120			
WG415792PBS	PBS	01/12/17 18:37				U	mg/Kg		-0.9	0.9			
WG415792LCSS1	LCSS	01/12/17 18:39	PCN52516	116		107.6	mg/Kg		91.5	141			
WG415792LCSSD1	LCSSD	01/12/17 18:41	PCN52516	116		108.1	mg/Kg		91.5	141	0	20	
L34674-01SDL	SDL	01/12/17 18:45			2.9	2.85	mg/Kg				2	10	
WG415986CCV1	CCV	01/12/17 18:51	MS161201-14	.1001		.09882	mg/L	99	90	110			
WG415986CCB1	CCB	01/12/17 18:53				U	mg/L		-0.0015	0.0015			
L34674-07MS	MS	01/12/17 19:03	MS161205-2	25.4745	1.9	25.17	mg/Kg	91	75	125			
L34674-07MSD	MSD	01/12/17 19:06	MS161205-2	25.4745	1.9	26.31	mg/Kg	96	75	125	4	20	
WG415986CCV2	CCV	01/12/17 19:16	MS161201-14	.1001		.09821	mg/L	98	90	110			
WG415986CCB2	CCB	01/12/17 19:19				U	mg/L		-0.0015	0.0015			E6
WG415986CCV3	CCV	01/12/17 19:28	MS161201-14	.1001		.098	mg/L	98	90	110			
WG415986CCB3	CCB	01/12/17 19:30				U	mg/L		-0.0015	0.0015			

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416048													
WG416048PBS	PBS	01/11/17 11:28				U	%		-0.2	0.2			
WG416048LCSS	LCSS	01/11/17 11:50	PCN49919	7.21		8.13	%	113	80	120			
L34446-01MS	MS	01/11/17 12:34	SI141024-2	3	9.8	12.63	%	94	70	130			
L34446-01DUP	DUP	01/11/17 12:56			9.8	9.88	%				1	20	

Nitrate/Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415988													
WG415988ICV	ICV	01/10/17 20:55	WI161209-3	2.416		2.33	mg/L	96	90	110			
WG415988ICB	ICB	01/10/17 20:56				U	mg/L		-0.2	0.2			
WG415988LFB	LFB	01/10/17 21:00	WI170104-22	2		2	mg/L	100	90	110			
WG415879PBS	PBS	01/10/17 21:01				U	mg/Kg		-2	2			
L34445-01DUP	DUP	01/10/17 21:04			U	U	mg/Kg				0	20	RA
L34445-02AS	AS	01/10/17 21:06	WI170104-22	20	3	23	mg/Kg	100	90	110			
WG415988CCV1	CCV	01/10/17 21:10	WI170104-24	2		1.95	mg/L	98	90	110			
WG415988CCB1	CCB	01/10/17 21:13				U	mg/L		-0.2	0.2			
WG415988CCV2	CCV	01/10/17 21:26	WI170104-24	2		1.94	mg/L	97	90	110			
WG415988CCB2	CCB	01/10/17 21:29				U	mg/L		-0.2	0.2			
WG415988CCV3	CCV	01/10/17 21:33	WI170104-24	2		1.94	mg/L	97	90	110			
WG415988CCB3	CCB	01/10/17 21:36				U	mg/L		-0.2	0.2			

Monsanto Company

ACZ Project ID: ***L34674***

Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415988													
WG415988ICV	ICV	01/10/17 20:55	WI161209-3	.609		.59	mg/L	97	90	110			
WG415988ICB	ICB	01/10/17 20:56				U	mg/L		-0.1	0.1			
WG415988LFB	LFB	01/10/17 21:00	WI170104-22	1		1.02	mg/L	102	90	110			
WG415879PBS	PBS	01/10/17 21:01				U	mg/Kg		-1	1			
L34445-01DUP	DUP	01/10/17 21:04			U	U	mg/Kg				0	20	RA
L34445-02AS	AS	01/10/17 21:06	WI170104-22	10	U	11.1	mg/Kg	111	90	110			M1
WG415988CCV1	CCV	01/10/17 21:10	WI170104-24	1		1	mg/L	100	90	110			
WG415988CCB1	CCB	01/10/17 21:13				U	mg/L		-0.1	0.1			
WG415988CCV2	CCV	01/10/17 21:26	WI170104-24	1		1	mg/L	100	90	110			
WG415988CCB2	CCB	01/10/17 21:29				U	mg/L		-0.1	0.1			
WG415988CCV3	CCV	01/10/17 21:33	WI170104-24	1		1.01	mg/L	101	90	110			
WG415988CCB3	CCB	01/10/17 21:36				U	mg/L		-0.1	0.1			

Nitrogen, ammonia (KCL) M350.1 Auto Salicylate w/gas diffusion

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415949													
WG415949ICV	ICV	01/10/17 12:36	WI170103-8	11.988		11.72	mg/L	98	90	110			
WG415949ICB	ICB	01/10/17 12:37				U	mg/L		-0.1	0.1			
WG415949LFB	LFB	01/10/17 12:39	WI161026-1	10		10.12	mg/L	101	90	110			
WG415879PBS	PBS	01/10/17 12:40				U	mg/Kg		-1	1			
L34445-01DUP	DUP	01/10/17 12:43			1	1.2	mg/Kg				18	20	RA
L34445-02AS	AS	01/10/17 12:46	WI161026-1	100	1	100.1	mg/Kg	99	75	125			
WG415949CCV1	CCV	01/10/17 12:53	WI161031-9	10		9.7	mg/L	97	90	110			
WG415949CCB1	CCB	01/10/17 12:55				U	mg/L		-0.1	0.1			
L34674-08AS	AS	01/10/17 13:06	WI161026-1	100	1	101.4	mg/Kg	100	75	125			
WG415949CCV2	CCV	01/10/17 13:10	WI161031-9	10		9.63	mg/L	96	90	110			
WG415949CCB2	CCB	01/10/17 13:12				U	mg/L		-0.1	0.1			
WG415949CCV3	CCV	01/10/17 13:18	WI161031-9	10		9.32	mg/L	93	90	110			
WG415949CCB3	CCB	01/10/17 13:19				U	mg/L		-0.1	0.1			

Organic Matter USDA No.60 - Method 24

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416430													
WG416430PBS	PBS	01/17/17 13:30				U	%		-0.3	0.3			
WG416430LCSS	LCSS	01/17/17 14:40	PCN45409	2		2	%	100	75	125			
L34445-01DUP	DUP	01/17/17 17:00			2.4	2.35	%				2	20	RA
WG416430CCB1	CCB	01/18/17 1:10				U	%		-0.3	0.3			
WG416430CCV1	CCV	01/18/17 2:20	PCN45434	2		2.1	%	105	90	110			
WG416430CCB2	CCB	01/18/17 12:50				U	%		-0.3	0.3			
WG416430CCV2	CCV	01/18/17 14:00	PCN45434	2		2.1	%	105	90	110			

pH, Saturated Paste EPA 600/2-78-054 section 3.2.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415921													
L34445-04DUP	DUP	01/10/17 13:21			7	7	units				0	20	
WG415921CCV1	CCV	01/11/17 3:55	PCN50759	4		4	units	100	3.9	4.1			
WG415921CCV2	CCV	01/11/17 5:08	PCN50759	4		4.1	units	103	3.9	4.1			
WG415921ICV	ICV	01/11/17 9:59	PCN50759	4		4	units	100	3.9	4.1			

Monsanto Company

ACZ Project ID: ***L34674***

Phosphorus, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416037													
WG416037ICV	ICV	01/11/17 15:03	II161203-1	5.003		5.25	mg/L	105	90	110			
WG416037ICB	ICB	01/11/17 15:06				U	mg/L		-0.3	0.3			
WG416037PQV	PQV	01/11/17 15:09	II161228-3	.4995		.51	mg/L	102	70	130			
WG416037ICSAB	ICSAB	01/11/17 15:12	II161206-1	4.995		4.9	mg/L	98	80	120			
WG415792PBS	PBS	01/11/17 15:18				U	mg/Kg		-30	30			
WG415792LCSS2	LCSS	01/11/17 15:27	PCN52708	842		689	mg/Kg		673.6	1010.4			
WG415792LCSSD2	LCSSD	01/11/17 15:30	PCN52708	842		691	mg/Kg		673.6	1010.4	0	20	
L34674-04SDL	SDL	01/11/17 15:46			2220	2400	mg/Kg				8	10	
WG416037CCV1	CCV	01/11/17 15:49	II161221-2	2.5015		2.68	mg/L	107	90	110			
WG416037CCB1	CCB	01/11/17 15:52				U	mg/L		-0.3	0.3			
L34674-04 MS	MS	01/11/17 15:55	II170109-2	101.898	2220	3252	mg/Kg	1013	75	125			M3
L34674-04 MSD	MSD	01/11/17 15:58	II170109-2	101.898	2220	2165	mg/Kg	-54	75	125	40	20	M3 RD
WG416037CCV2	CCV	01/11/17 16:23	II161221-2	2.5015		2.76	mg/L	110	90	110			
WG416037CCB2	CCB	01/11/17 16:26				U	mg/L		-0.3	0.3			
WG416261													
WG416261ICV	ICV	01/16/17 15:41	II161203-1	5.003		5.19	mg/L	104	90	110			
WG416261ICB	ICB	01/16/17 15:44				U	mg/L		-0.3	0.3			
WG416261PQV	PQV	01/16/17 15:47	II161228-3	.4995		.51	mg/L	102	70	130			
WG416261ICSAB	ICSAB	01/16/17 15:51	II161206-1	4.995		4.99	mg/L	100	80	120			
WG415792PBS	PBS	01/16/17 15:57				U	mg/Kg		-30	30			
WG415792LCSS2	LCSS	01/16/17 16:00	PCN52708	842		701	mg/Kg		673.6	1010.4			
WG415792LCSSD2	LCSSD	01/16/17 16:03	PCN52708	842		708	mg/Kg		673.6	1010.4	1	20	
L34674-04MS	MS	01/16/17 16:09	II170109-2	101.898	2230	3149	mg/Kg	902	75	125			M3
L34674-04MSD	MSD	01/16/17 16:12	II170109-2	101.898	2230	2129	mg/Kg	-99	75	125	39	20	M3 RD
L34674-06SDL	SDL	01/16/17 16:22			17500	18715	mg/Kg				7	10	
WG416261CCV	CCV	01/16/17 16:28	II161221-2	2.5015		2.63	mg/L	105	90	110			
WG416261CCB	CCB	01/16/17 16:31				U	mg/L		-0.3	0.3			

Potassium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416011													
WG416011ICV	ICV	01/11/17 10:07	II161209-1	20		20	mg/L	100	90	110			
WG416011ICB	ICB	01/11/17 10:10				U	mg/L		-0.6	0.6			
WG416011PQV	PQV	01/11/17 10:13	II161228-3	1		1.03	mg/L	103	70	130			
WG416011ICSAB	ICSAB	01/11/17 10:17	II161031-5	25		24.7	mg/L	99	80	120			
L34445-04DUP	DUP	01/11/17 10:36			0.198	.195	meq/L				2	20	
WG416011CCV1	CCV	01/11/17 10:55	II161227-1	10		9.51	mg/L	95	90	110			
WG416011CCB1	CCB	01/11/17 10:58				U	mg/L		-0.6	0.6			
WG416011CCV2	CCV	01/11/17 11:20	II161227-1	10		9.72	mg/L	97	90	110			
WG416011CCB2	CCB	01/11/17 11:23				U	mg/L		-0.6	0.6			

Saturation Percent USDA No. 60 (2)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415921													
L34445-04DUP	DUP	01/10/17 13:21			50.3	51.79	%				3	20	
WG416077													
L34674-10DUP	DUP	01/12/17 9:15			27.9	29.51	%				6	20	

Monsanto Company

ACZ Project ID: ***L34674***

Selenium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415986													
WG415986ICV	ICV	01/12/17 18:27	MS161128-3	.05		.05337	mg/L	107	90	110			
WG415986ICB	ICB	01/12/17 18:29				U	mg/L		-0.0003	0.0003			
WG415986ICSA	ICSA	01/12/17 18:31				U	mg/L		-0.0003	0.0003			
WG415986ICSAB	ICSAB	01/12/17 18:33	MS161201-10	.02002		.02088	mg/L	104	80	120			
WG415792PBS	PBS	01/12/17 18:37				U	mg/Kg		-0.15	0.15			
WG415792LCSS1	LCSS	01/12/17 18:39	PCN52516	178		178.24	mg/Kg		140	216			
WG415792LCSSD1	LCSSD	01/12/17 18:41	PCN52516	178		181.25	mg/Kg		140	216	2	20	
L34674-01SDL	SDL	01/12/17 18:45			2.21	2.285	mg/Kg				3	10	
WG415986CCV1	CCV	01/12/17 18:51	MS161201-14	.25025		.25512	mg/L	102	90	110			
WG415986CCB1	CCB	01/12/17 18:53				.00028	mg/L		-0.0003	0.0003			
L34674-07MS	MS	01/12/17 19:03	MS161205-2	12.76275	.73	14.456	mg/Kg	108	75	125			
L34674-07MSD	MSD	01/12/17 19:06	MS161205-2	12.76275	.73	13.475	mg/Kg	100	75	125	7	20	
WG415986CCV2	CCV	01/12/17 19:16	MS161201-14	.25025		.25057	mg/L	100	90	110			
WG415986CCB2	CCB	01/12/17 19:19				.00033	mg/L		-0.0003	0.0003			BB
WG415986CCV3	CCV	01/12/17 19:28	MS161201-14	.25025		.25005	mg/L	100	90	110			
WG415986CCB3	CCB	01/12/17 19:30				.00026	mg/L		-0.0003	0.0003			
WG416190													
WG416190ICV	ICV	01/13/17 18:42	MS161128-3	.05		.0523	mg/L	105	90	110			
WG416190ICB	ICB	01/13/17 18:45				U	mg/L		-0.0003	0.0003			
WG416190ICSA	ICSA	01/13/17 18:48				U	mg/L		-0.0003	0.0003			
WG416190ICSAB	ICSAB	01/13/17 18:51	MS161201-10	.02002		.01922	mg/L	96	80	120			
WG415792PBS	PBS	01/13/17 18:58				U	mg/Kg		-0.15	0.15			
WG415792LCSS1	LCSS	01/13/17 19:01	PCN52516	178		165.2	mg/Kg		140	216			
WG415792LCSSD1	LCSSD	01/13/17 19:04	PCN52516	178		164.8	mg/Kg		140	216	0	20	
L34674-07MS	MS	01/13/17 19:17	MS161205-2	12.76275	.68	13.056	mg/Kg	97	75	125			
L34674-07MSD	MSD	01/13/17 19:20	MS161205-2	12.76275	.68	12.128	mg/Kg	90	75	125	7	20	
WG416190CCV1	CCV	01/13/17 19:23	MS161201-14	.25025		.2574	mg/L	103	90	110			
WG416190CCB1	CCB	01/13/17 19:26				.0002	mg/L		-0.0003	0.0003			
L34674-13SDL	SDL	01/13/17 19:39			.53	.515	mg/Kg				3	10	
WG416146PBS	PBS	01/13/17 19:42				U	mg/Kg		-0.15	0.15			
WG416190CCV2	CCV	01/13/17 20:01	MS161201-14	.25025		.2328	mg/L	93	90	110			
WG416190CCB2	CCB	01/13/17 20:04				.00015	mg/L		-0.0003	0.0003			

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416011													
WG416011ICV	ICV	01/11/17 10:07	II161209-1	100		99.9	mg/L	100	90	110			
WG416011ICB	ICB	01/11/17 10:10				U	mg/L		-0.6	0.6			
WG416011PQV	PQV	01/11/17 10:13	II161228-3	1		1.08	mg/L	108	70	130			
WG416011ICSAB	ICSAB	01/11/17 10:17	II161031-5	25		25.3	mg/L	101	80	120			
L34445-04DUP	DUP	01/11/17 10:36			0.0878	.093	meq/L				6	20	
WG416011CCV1	CCV	01/11/17 10:55	II161227-1	50		49.4	mg/L	99	90	110			
WG416011CCB1	CCB	01/11/17 10:58				U	mg/L		-0.6	0.6			
WG416011CCV2	CCV	01/11/17 11:20	II161227-1	50		49.8	mg/L	100	90	110			
WG416011CCB2	CCB	01/11/17 11:23				U	mg/L		-0.6	0.6			

Monsanto Company

ACZ Project ID: ***L34674***

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415420													
WG415420PBS	PBS	12/29/16 11:00				U	%		-0.1	0.1			
L34674-14DUP	DUP	12/30/16 11:00			87.7	86.69	%				1	20	

Sulfur Organic Residual M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA

Sulfur Pyritic Sulfide M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA

Sulfur Sulfate M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA

Sulfur Total M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA
L34446-01MS	MS	01/12/17 16:35	PCN49456	1.33	U	1.16	%	87	80	120			
WG416138LCSS	LCSS	01/12/17 16:35	PCN51462	3.82		3.67	%	96	80	120			
WG416138PBS	PBS	01/12/17 16:35				U	%		-0.03	0.03			

Sulfur, total ASTM D-4239-85C, LECO Furnace

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416470													
WG416470PBS	PBS	01/18/17 10:30				U	%		-0.03	0.03			
WG416470LCSS	LCSS	01/18/17 10:53	PCN52722	3.82		3.5	%	92	80	120			
L34445-01MS	MS	01/18/17 11:40	PCN49456	1.33	U	1.24	%	93	80	120			
L34445-01DUP	DUP	01/18/17 12:03			U	.01	%				200	20	RA

Total Sulfur Minus Sulfate M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG416138													
L34446-01DUP	DUP	01/12/17 16:35			U	U	%				0	20	RA

Monsanto Company

ACZ Project ID: ***L34674***

Uranium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG415986													
WG415986ICV	ICV	01/12/17 18:27	MS161128-3	.05		.05277	mg/L	106	90	110			
WG415986ICB	ICB	01/12/17 18:29				.0001	mg/L		-0.0003	0.0003			
WG415986ICSA	ICSA	01/12/17 18:31				U	mg/L		-0.0005	0.0005			
WG415986ICSAB	ICSAB	01/12/17 18:33	MS161201-10	.02		.02082	mg/L	104	80	120			
WG415792PBS	PBS	01/12/17 18:37				U	mg/Kg		-0.15	0.15			
WG415792LCSS1	LCSS	01/12/17 18:39	PCN52516	17.6		16.57	mg/Kg		14.2	20.9			
WG415792LCSSD1	LCSSD	01/12/17 18:41	PCN52516	17.6		16.89	mg/Kg		14.2	20.9	2	20	
L34674-01SDL	SDL	01/12/17 18:45			4.76	4.655	mg/Kg				2	10	
WG415986CCV1	CCV	01/12/17 18:51	MS161201-14	.1		.10198	mg/L	102	90	110			
WG415986CCB1	CCB	01/12/17 18:53				.0002	mg/L		-0.0003	0.0003			
L34674-07MS	MS	01/12/17 19:03	MS161205-2	12.75	3.54	16.677	mg/Kg	103	75	125			
L34674-07MSD	MSD	01/12/17 19:06	MS161205-2	12.75	3.54	17.035	mg/Kg	106	75	125	2	20	
WG415986CCV2	CCV	01/12/17 19:16	MS161201-14	.1		.10104	mg/L	101	90	110			
WG415986CCB2	CCB	01/12/17 19:19				.00011	mg/L		-0.0003	0.0003			E6
WG415986CCV3	CCV	01/12/17 19:28	MS161201-14	.1		.10132	mg/L	101	90	110			
WG415986CCB3	CCB	01/12/17 19:30				.00021	mg/L		-0.0003	0.0003			

Monsanto Company ACZ Project ID: ***L34674***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-01	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416037	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG415986	Selenium, total (3050)	M6020 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L34674***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-02	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416037	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L34674***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-03	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416037	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-04	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416037	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG416261		M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG416037		M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG416261		M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L34674***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-05	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416261	Phosphorus, total (3050)	M6010B ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG415986	Selenium, total (3050)	M6020 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-06	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416261	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG415986	Selenium, total (3050)	M6020 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-07	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416037	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-08	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416037	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG415986	Selenium, total (3050)	M6020 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-09	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416261	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG415986	Selenium, total (3050)	M6020 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-10	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416037	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG415986	Selenium, total (3050)	M6020 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L34674-11	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-12	WG415986	Cadmium, total (3050)	M6020 ICP-MS	E6	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
		Uranium, total (3050)	M6020 ICP-MS	E6	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L34674-13	WG416138	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L34674-14	WG416030	Boron, soluble (Hot Water)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416037	Phosphorus, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG415986	Selenium, total (3050)	M6020 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG416304	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG416430	Organic Matter	USDA No.60 - Method 24	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG416470	Sulfur, total	ASTM D-4239-85C, LECO Furnace	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415988	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG415949	Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M350.1 Auto Salicylate w/gas diffusion	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Cation Exchange Capacity (CEC)	USDA No. 60 (19)

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	SM2510B
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
Organic Matter	USDA No.60 - Method 24
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2
Saturation Percent	USDA No. 60 (2)
Solids, Percent	D2216-80
Sulfur HCl Residue	M600/2-78-054 3.2.4-MOD
Sulfur HNO3 Residue	M600/2-78-054 3.2.4-MOD
Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD
Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD
Sulfur Sulfate	M600/2-78-054 3.2.4-MOD
Sulfur Total	M600/2-78-054 3.2.4-MOD
Sulfur, total	ASTM D-4239-85C, LECO Furnace
Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrogen, ammonia (KCL)	M350.1 Auto Salicylate w/gas diffusion

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG415986

ACZ Laboratories, Inc

Instrument ID: ICPMS6
Analyst: MSH
ACZ Dept: 33
Create Date: 01/10/2017 17:31
Start Date/Time: 1-10-17
End Date/Time: 1-13-17

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 3050	CD MS 3050	MO MS 3050	SE MS 3050	U MS 3050	Dilution
1	WG415986ICV	MS161128-3			1			✓	✓	✓	✓	✓	1
2	WG415986ICB	NONE			1			✓	✓	✓	✓	✓	1
3	WG415986ICSA	MS161201-9			1			✓	✓	✓	✓	✓	1
4	WG415986ICSAB	MS161201-10			1			✓	✓	✓	✓	✓	1
5	WG415986WASH	NONE			1			✓	✓	✓	✓	✓	1
6	WG415792PBS	NONE			100			✓	✓	✓	✓	✓	500
7	WG415792LCSS1	PCN52516			100			✓	✓	✓	✓	✓	5000
8	WG415792LCSSD1	PCN52516			100			✓	✓	✓	✓	✓	5000
9	L34674-01	SB-06GT (1.5-10)			102			✓	✓	✓	✓	✓	510
10	L34674-01SDL	NONE			1			✓	✓	✓	✓	✓	510
11	L34674-02	SB-07GT (0-4)			102			✓	✓	✓	✓	✓	510
12	L34674-03	SB-09GT (8-12)			102			✓	✓	✓	✓	✓	510
13	WG415986CCV1	MS161201-14			1			✓	✓	✓	✓	✓	1
14	WG415986CCB1	NONE			1			✓	✓	✓	✓	✓	1
15	L34674-04	SB-09GT (18-22)			102			✓	✓	✓	✓	✓	510
16	L34674-05	SB-12GT (0-27)			101			✓	✓	✓	✓	✓	505
17	L34674-06	SB-13AL (0-25)			101			✓	✓	✓	✓	✓	505
18	L34674-07	SB-14AL (0-15)			102			✓	✓	✓	✓	✓	510
19	L34674-07MS	MS161205-2			102			✓	✓	✓	✓	✓	510
20	L34674-07MSD	MS161205-2			102			✓	✓	✓	✓	✓	510
21	L34674-08	SB-14AL (15-35)			101			✓	✓	✓	✓	✓	505
22	L34674-09	SB-15AL (0-25)			101			✓	✓	✓	✓	✓	505

Report Comments: WG415986 - 7
Se/Ag → 1.5

Internal Comments

AREV: ASA 1-13-17
Initials, Date

SREV: 1-13-17
Initials, Date

L34674-1701201346

1/10/2017 5:43:44 PM 10317

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG415986

ACZ Laboratories, Inc

Instrument ID: ICPMS6
Analyst:
ACZ Dept: 33
Create Date: 01/10/2017 17:31
Start Date/Time:
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 30 50	CD MS 30 50	MO MS 30 50	SE MS 30 50	U MS 30 50	Dilution
23	L34674-10	SB-15AL (25-50)			101			✓	✓	✓	✓	✓	505
24	L34674-11	SB-01_02GT (1.5-6.5)			102			✓	✓		✓	✓	510
25	WG415986CCV2	MS161201-14			1			✓	✓	✓	✓	✓	1
26	WG415986CCB2	NONE			1			✓	✓	✓	✓	✓	1
27	L34674-12	TP-6 (7-10)-DUPLICAT			102			✓	✓		✓	✓	510
28	L34674-13	TP-20 (12-14)-DUPLIC			101			✓	✓		✓	✓	505
29	L34674-14	SB-09GT (8-12-DUPLIC			101			✓	✓	✓	✓	✓	505
30	WG415986CCV3	MS161201-14			1			✓	✓	✓	✓	✓	1
31	WG415986CCB3	NONE			1			✓	✓	✓	✓	✓	1

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07MS	ICPMS Spike
L34674-07MSD	ICPMS Spike
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
ICPMS DATA REVIEW CHECKLIST

AREV: [illegible]
Date: 10-13-17

SREV: [illegible]
Date: 1-16-17

Workgroup: W6415986
Sample Type: 3650
Analysis Date: 10-12-17
Analyst: [illegible]

	Yes	No	N/A
1) Is the instrument ID on the bench sheet correct?	✓		
2) Has a passing method tune been performed within 24 hours?			
3) Was the low calibration point dropped? If yes, notify PM of change to PQLs.		✓	
4) Is the linear regression ≥ 0.995 for the analytes of interest?	✓		
5) Was the PQV standard analyzed & evaluated for DW samples ? (Fail in LIMS if no DW sxs in WG.)	✓		
6) Do the dilution factors on the benchsheet match the sequence in the raw data?	✓		
7) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?	✓		
8) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?	✓		
9) Are the % Recoveries of the internal standards within the method limits?		✓	
10) Are all of the QC critera listed in LIMS within specified limits?		✓	
11) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?	✓		
12) Are all errors properly crossed out (i.e. single-line, dated & initialed)?	✓		
13) Is a current standard/reagent form attached to the workgroup?	✓		
14) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
CCB2	Se = 1 ISTDs ↑ 72/115/209	BB/Redo SXs EF
-12		

ACZ Labs, Inc.
Standards/Reagents Information
ICPMS, Methods 6020 and 200.8

Calibration Standards

6020/200.8 Stock #1: MS161201-11 SCN
6020/200.8 Stock #2: MS161201-12 SCN
6020/200.8 Stock #3: MS161201-13 SCN

PQV STD: MS161201-7 SCN
Exp. 3/1/2017

INT STD: MS160923-1 SCN
Exp. 8/25/2017

Nitric Acid: 52053 PCN

Hydrochloric Acid: 51241 PCN

VERIFIED: MGA 1-13-17

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415986

Date Reported: 16-Jan-17
Run ID: R1492262
Date Analyzed: 12-Jan-17
ICAL Workgroup:
Instrument ID: ICPMS6

WG415986ICV

Tag:

Measured: 1/12/2017 6:27:19 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.05012	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	100	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.04958	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	99	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.01872	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	94	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.05337	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	107	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.05277	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	106	1		%	++	0.0001	0.0005			

WG415986ICB

Tag:

Measured: 1/12/2017 6:29:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.0001	1	B	mg/L	++	0.0001	0.0005			

WG415986ICSA

Tag:

Measured: 1/12/2017 6:31:17 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG415986ICSAB

Tag:

Measured: 1/12/2017 6:33:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.02068	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	103	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.01825	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	91	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.95652	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	93	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.02088	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	104	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.02082	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	104	1		%	++	0.0001	0.0005			

WG415792PBS

Tag: Measured: 1/12/2017 6:37:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		500	U	mg/Kg	++	0.1	0.5			
SREV	CADMIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND		500	U	mg/Kg	++	0.3	1			
SREV	SELENIUM	FOUND		500	U	mg/Kg	++	0.05	0.1			
SREV	URANIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			

WG415792LCSS1

Tag: Measured: 1/12/2017 6:39:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	145	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	100	5000		%	++	1	5			
SREV	CADMIUM	FOUND	81.19	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	93	5000		%	++	0.5	3			
SREV	MOLYBDENUM	FOUND	107.6	5000		mg/Kg	++	3	10			
SREV	MOLYBDENUM	REC	93	5000		%	++	3	10			
SREV	SELENIUM	FOUND	178.24	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	100	5000		%	++	0.5	1			
SREV	URANIUM	FOUND	16.57	5000		mg/Kg	++	0.5	3			
SREV	URANIUM	REC	94	5000		%	++	0.5	3			

WG415792LCSSD

Tag: Measured: 1/12/2017 6:41:22 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	142.8	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	98	5000		%	++	1	5			
SREV	ARSENIC	RPD	2	5000		%	++	1	5			
SREV	CADMIUM	FOUND	81.32	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	93	5000		%	++	0.5	3			
SREV	CADMIUM	RPD	0	5000		%	++	0.5	3			
SREV	MOLYBDENUM	FOUND	108.1	5000		mg/Kg	++	3	10			
SREV	MOLYBDENUM	REC	93	5000		%	++	3	10			
SREV	MOLYBDENUM	RPD	0	5000		%	++	3	10			
SREV	SELENIUM	FOUND	181.25	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	102	5000		%	++	0.5	1			
SREV	SELENIUM	RPD	2	5000		%	++	0.5	1			
SREV	URANIUM	FOUND	16.89	5000		mg/Kg	++	0.5	3			
SREV	URANIUM	REC	96	5000		%	++	0.5	3			
SREV	URANIUM	RPD	2	5000		%	++	0.5	3			

L34674-01

Tag: Measured: 1/12/2017 6:43:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	7.2	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	6.77	510		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	2.9	510		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	2.21	510		mg/Kg	++	0.05	0.1		BB	
SREV	URANIUM	U-MS-3050	4.76	510		mg/Kg	++	0.05	0.3			

L34674-01SDL

Tag:

Measured: 1/12/2017 6:45:27 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	D	3	510		%	++	0.1	0.5			
SREV	ARSENIC	FOUND	1.49	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REG	7.45	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	D	3	510		%	++	0.05	0.3			
SREV	CADMIUM	FOUND	1.316	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REG	6.58	510		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	D	2	510		%	++	0.3	1			
SREV	MOLYBDENUM	FOUND	0.57	510	B	mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REG	2.85	510	B	mg/Kg	++	0.3	1			
SREV	SELENIUM	D	3	510		%	++	0.05	0.1			
SREV	SELENIUM	FOUND	0.457	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REG	2.285	510		mg/Kg	++	0.05	0.1			
SREV	URANIUM	D	2	510		%	++	0.05	0.3			
SREV	URANIUM	FOUND	0.931	510		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REG	4.655	510		mg/Kg	++	0.05	0.3			

L34674-02

Tag:

Measured: 1/12/2017 6:47:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.1	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.82	510		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	2.4	510		mg/Kg	++	0.3	1			
REDO	SELENIUM	REG	.20	510		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	.62	510		mg/Kg	++	0.05	0.3			

L34674-03

Tag:

Measured: 1/12/2017 6:49:35 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.9	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	4.29	510		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	7.9	510		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	2.16	510		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	4.96	510		mg/Kg	++	0.05	0.3			

WG415986CCV1

Tag:

Measured: 1/12/2017 6:51:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10449	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	104	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.09547	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	95	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.09882	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	99	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.25512	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	102	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10198	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	102	1		%	++	0.0001	0.0005			

WG415986CCB1

Tag:

Measured: 1/12/2017 6:53:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.00019	1	B	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.00028	1	B	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.0002	1	B	mg/L	++	0.0001	0.0005			

L34674-04

Tag:

Measured: 1/12/2017 6:55:35 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	7.6	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	2.23	510		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	5.5	510		mg/Kg	++	0.3	1			
REDO	SELENIUM	REG	.83	510		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	2.76	510		mg/Kg	++	0.05	0.3			

L34674-05

Tag:

Measured: 1/12/2017 6:57:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	24.6	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	12.1	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	18.7	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	29.2	505		mg/Kg	++	0.05	0.1		BB	
SREV	URANIUM	U-MS-3050	16.8	505		mg/Kg	++	0.05	0.3			

L34674-06

Tag:

Measured: 1/12/2017 6:59:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	5.9	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	4.61	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	4.3	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	3.29	505		mg/Kg	++	0.05	0.1		BB	
SREV	URANIUM	U-MS-3050	15.2	505		mg/Kg	++	0.05	0.3			

L34674-07

Tag:

Measured: 1/12/2017 7:01:49 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.7	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	3.13	510		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	1.9	510		mg/Kg	++	0.3	1			
REDO	SELENIUM	REG	.73	510		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	3.54	510		mg/Kg	++	0.05	0.3			

L34674-07MS

Tag: Measured: 1/12/2017 7:03:55 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	32.74	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	102	510		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	26.388	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	91	510		%	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND	25.17	510		mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REC	91	510		%	++	0.3	1			
SREV	SELENIUM	FOUND	14.456	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	108	510		%	++	0.05	0.1			
SREV	URANIUM	FOUND	16.677	510		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REC	103	510		%	++	0.05	0.3			

L34674-07MSD

Tag: Measured: 1/12/2017 7:06:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	32.62	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	101	510		%	++	0.1	0.5			
SREV	ARSENIC	RPD	0	510		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	27.06	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	94	510		%	++	0.05	0.3			
SREV	CADMIUM	RPD	3	510		%	++	0.05	0.3			
SREV	MOLYBDENUM	FOUND	26.31	510		mg/Kg	++	0.3	1			
SREV	MOLYBDENUM	REC	96	510		%	++	0.3	1			
SREV	MOLYBDENUM	RPD	4	510		%	++	0.3	1			
SREV	SELENIUM	FOUND	13.475	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	100	510		%	++	0.05	0.1			
SREV	SELENIUM	RPD	7	510		%	++	0.05	0.1			
SREV	URANIUM	FOUND	17.035	510		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REC	106	510		%	++	0.05	0.3			
SREV	URANIUM	RPD	2	510		%	++	0.05	0.3			

L34674-08

Tag: Measured: 1/12/2017 7:08:05 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	11.1	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	3.75	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	2.0	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	1.58	505		mg/Kg	++	0.05	0.1		BB	
SREV	URANIUM	U-MS-3050	4.00	505		mg/Kg	++	0.05	0.3			

L34674-09

Tag: Measured: 1/12/2017 7:10:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	10.3	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	1.38	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	3.1	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	3.57	505		mg/Kg	++	0.05	0.1		BB	
SREV	URANIUM	U-MS-3050	4.25	505		mg/Kg	++	0.05	0.3			

L34674-10

Tag: Measured: 1/12/2017 7:12:27 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	4.8	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.74	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	1.2	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	4.50	505		mg/Kg	++	0.05	0.1		BB	
SREV	URANIUM	U-MS-3050	3.23	505		mg/Kg	++	0.05	0.3			

L34674-11

Tag: Measured: 1/12/2017 7:14:37 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.5	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.64	510		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	.19	510		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	.79	510		mg/Kg	++	0.05	0.3			

WG415986CCV2

Tag: Measured: 1/12/2017 7:16:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10106	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.09471	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	95	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.09821	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	98	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.25057	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	100	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10104	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	101	1		%	++	0.0001	0.0005			

WG415986CCB2

Tag: Measured: 1/12/2017 7:19:13 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.0001	1	B	mg/L	++	0.0001	0.0005		E6	
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003		E6	
SREV	SELENIUM	FOUND	0.00033	1		mg/L	ALRT	0.0001	0.0003		BB	
SREV	URANIUM	FOUND	0.00011	1	B	mg/L	++	0.0001	0.0005		E6	

L34674-12

Tag: Measured: 1/12/2017 7:21:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	12.9	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	2.43	510		mg/Kg	++	0.05	0.3		E6	
REDO	SELENIUM	REG	.48	510		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	1.24	510		mg/Kg	++	0.05	0.3		E6	

L34674-13

Tag: Measured: 1/12/2017 7:23:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.4	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	1.33	505		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	.60	505		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	1.69	505		mg/Kg	++	0.05	0.3			

L34674-14

Tag: Measured: 1/12/2017 7:26:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.3	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	3.87	505		mg/Kg	++	0.05	0.3			
SREV	MOLYBDENUM	-MS-3050	6.0	505		mg/Kg	++	0.3	1			
SREV	SELENIUM	-MS-3050	3.01	505		mg/Kg	++	0.05	0.1		BB	
SREV	URANIUM	U-MS-3050	5.16	505		mg/Kg	++	0.05	0.3			

WG415986CCV3

Tag: Measured: 1/12/2017 7:28:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.10234	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	102	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.09479	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	95	1		%	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND	0.098	1		mg/L	++	0.0005	0.003			
SREV	MOLYBDENUM	REC	98	1		%	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.25005	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	100	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.10132	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	101	1		%	++	0.0001	0.0005			

WG415986CCB3

Tag: Measured: 1/12/2017 7:30:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.0002	1	B	mg/L	++	0.0001	0.0005			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.0005	0.003			
SREV	SELENIUM	FOUND	0.00026	1	B	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.00021	1	B	mg/L	++	0.0001	0.0005			

US EPA 6020 Tune Check Sample Report

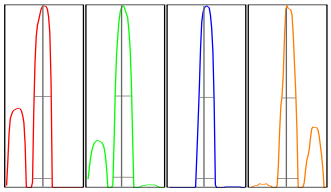
Batch Folder C:\Agilent\ICPMH\1\DATA\6020AMU-11_Jan_2017-16_09_19.b
Report Comment
Instrument Name G8403A JP16281462

[NoGas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	2868	0.73	5.00	
59	7088	0.78	5.00	
115	14276	0.24	5.00	
205	5027	0.79	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count
7	2845	2884	2875
59	7027	7105	7134
115	14282	14307	14239
205	4982	5044	5056

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	4649	7.00	6.9 - 7.1		0.743	0.900	
59	12102	58.90	58.9 - 59.1		0.781	0.900	
115	25987	114.95	114.9 - 115.1		0.733	0.900	
205	9669	205.00	204.9 - 205.1		0.775	0.900	

X% = 5 **Integration Time [sec] =** 0.1 **Acquisition Time [sec] =** 90.06 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

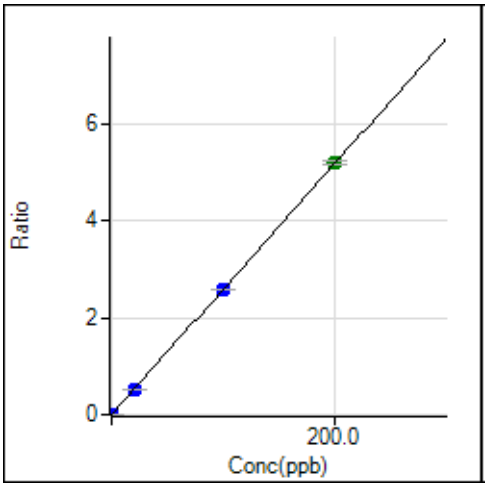
ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Carrier Gas	0.78	L/min	S/C Temp	2	°C
RF Matching	1.60	V	Option Gas	0.0	%	Gas Switch	Makeup Gas	
Smpl Depth	10.0	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas	0.22	L/min

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Omega Lens	9.4	V	Deflect	11.6	V
Extract 2	-140.0	V	Cell Entrance	-30	V	Plate Bias	-35	V
Omega Bias	-70	V	Cell Exit	-50	V			

Cell Parameters

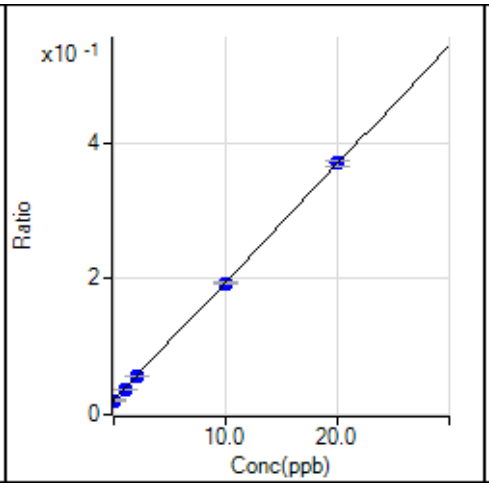
ParameterName	Value	Unit	ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	No		H2 Flow	0.0	mL/min	OctP RF	200	V
He Flow	0.0	mL/min	OctP Bias	-8.0	V	Energy Discrimination	5.0	V



9 Be [NoGas] / ISTD: 6 Li

y = 2.592E-2 x + 2.400E-4

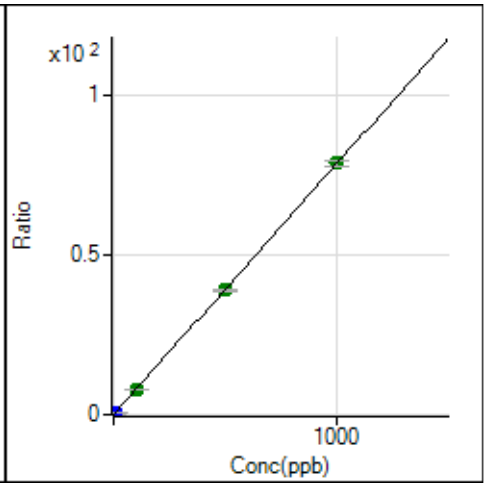
R	1.0000
DL	0.001111
BEC	0.009257



11 B [NoGas] / ISTD: 6 Li

y = 1.743E-2 x + 2.119E-2

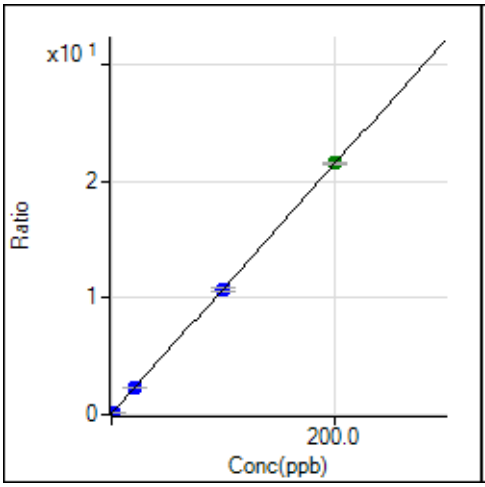
R	1.0000
DL	0.04555
BEC	1.216



27 Al [NoGas] / ISTD: 72 Ge

y = 7.830E-2 x + 1.757E-2

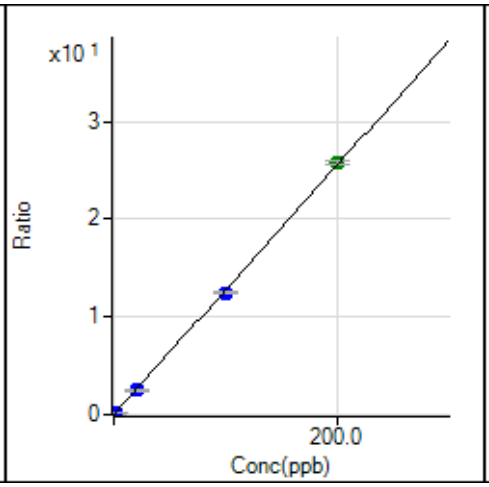
R	1.0000
DL	0.09469
BEC	0.2243



51 V [He] / ISTD: 45 Sc

y = 1.070E-1 x + 1.153E-1

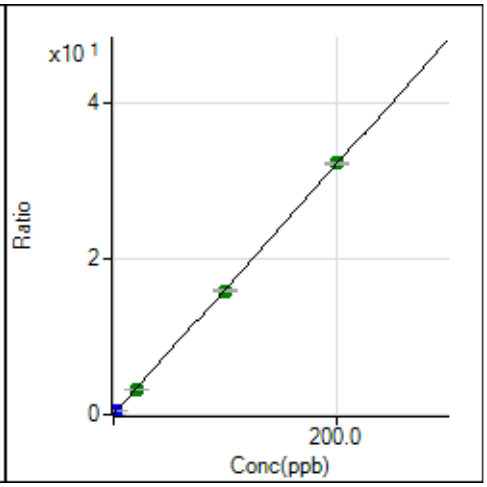
R	1.0000
DL	0.05323
BEC	1.078



52 Cr [He] / ISTD: 45 Sc

y = 1.278E-1 x + 3.294E-3

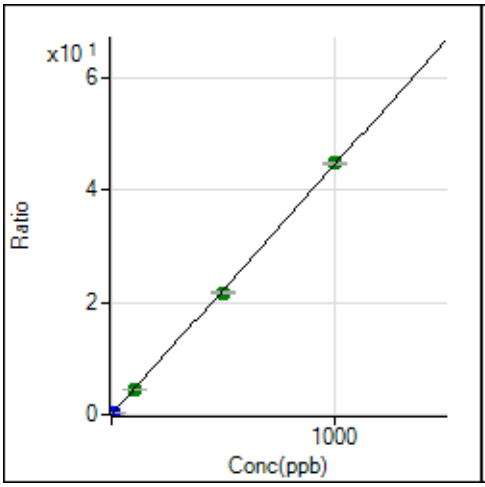
R	0.9999
DL	0.007836
BEC	0.02578



55 Mn [NoGas] / ISTD: 72 Ge

y = 1.605E-1 x + 6.814E-2

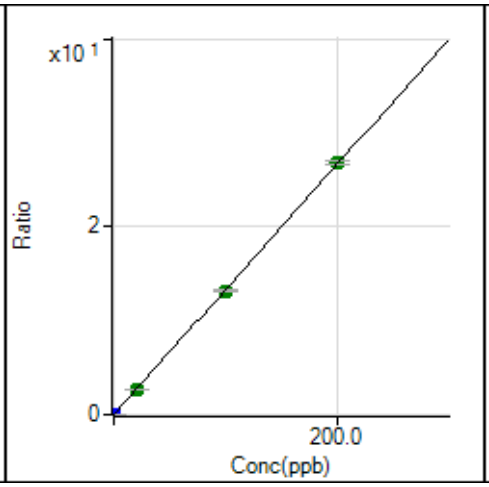
R	1.0000
DL	0.02478
BEC	0.4246



56 Fe [H2] / ISTD: 45 Sc

y = 4.443E-2 x + 1.015E-2

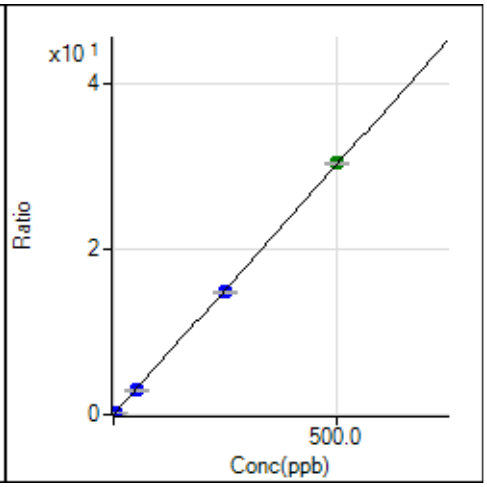
R	0.9999
DL	0.009983
BEC	0.2285



59 Co [NoGas] / ISTD: 72 Ge

y = 1.334E-1 x + 1.343E-3

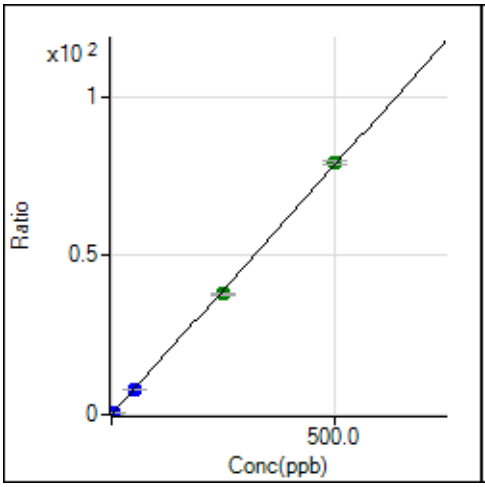
R	1.0000
DL	0.001045
BEC	0.01006



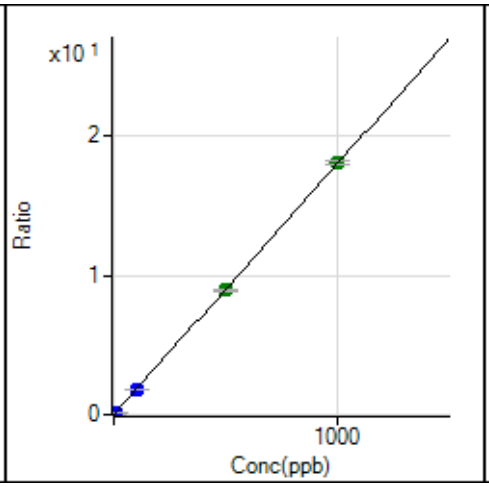
60 Ni [He] / ISTD: 45 Sc

y = 6.034E-2 x + 1.468E-3

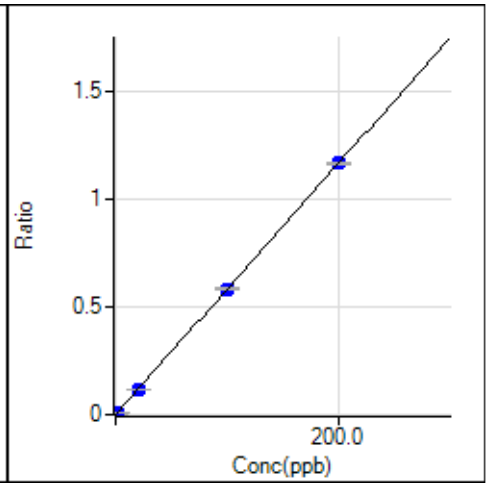
R	0.9999
DL	0.007248
BEC	0.02433



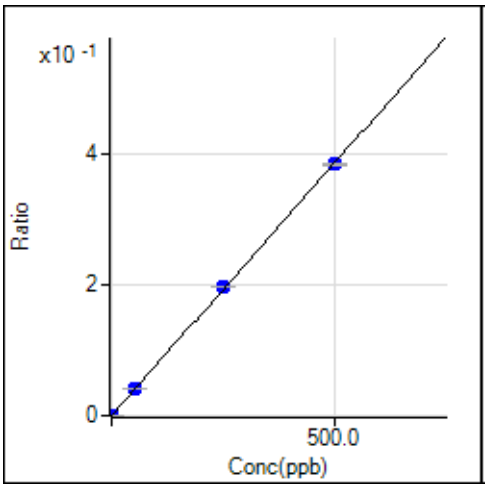
63 Cu [He] / ISTD: 45 Sc
y = 1.567E-1 x + 7.642E-3
R 0.9998
DL 0.01631
BEC 0.04876



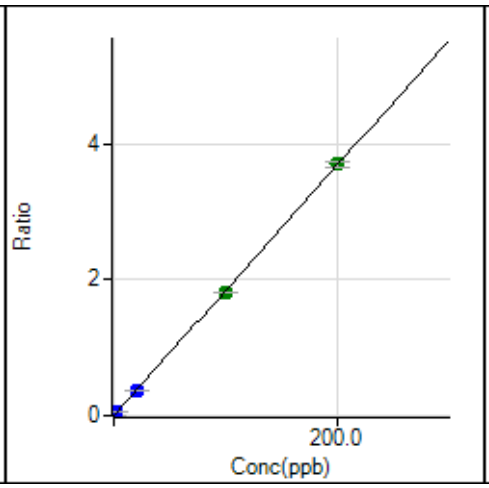
66 Zn [NoGas] / ISTD: 72 Ge
y = 1.802E-2 x + 5.913E-3
R 1.0000
DL 0.0422
BEC 0.3282



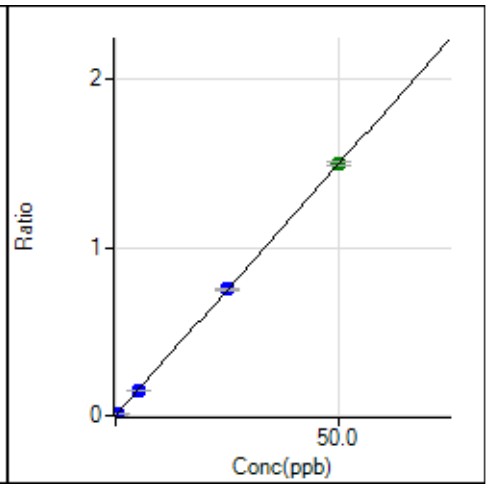
75 As [He] / ISTD: 115 In
y = 5.834E-3 x + 1.272E-4
R 1.0000
DL 0.2152
BEC 0.02181



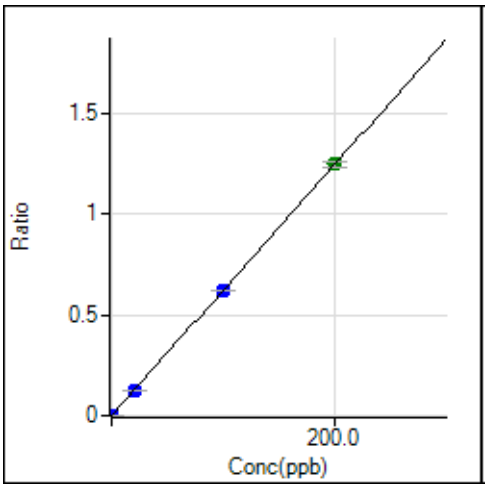
78 Se [H2] / ISTD: 115 In
y = 7.751E-4 x + 6.760E-6
R 0.9999
DL 0.006283
BEC 0.008722



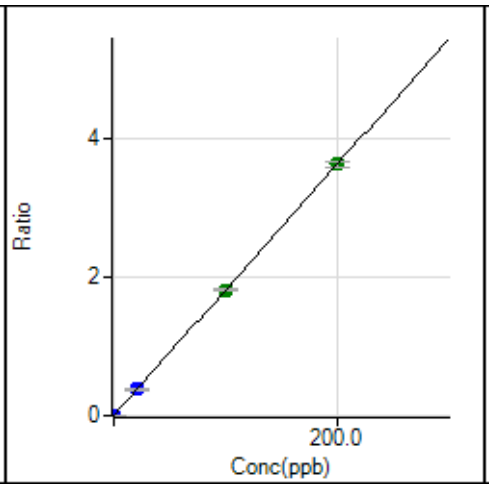
98 Mo [NoGas] / ISTD: 115 In
y = 1.844E-2 x + 9.304E-5
R 1.0000
DL 0.002964
BEC 0.005045



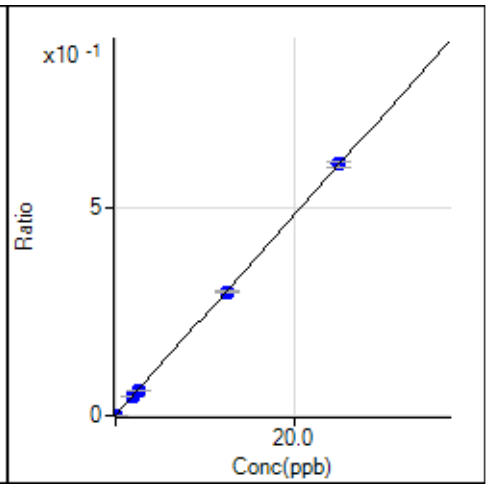
107 Ag [NoGas] / ISTD: 115 In
y = 2.993E-2 x + 3.897E-5
R 1.0000
DL 0.0003095
BEC 0.001302



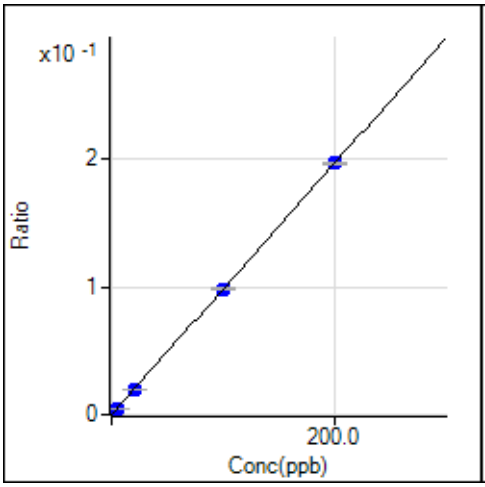
111 Cd [NoGas] / ISTD: 115 In
y = 6.223E-3 x + 4.666E-6
R 1.0000
DL 0.001776
BEC 0.0007499



118 Sn [NoGas] / ISTD: 115 In
y = 1.818E-2 x + 2.651E-3
R 1.0000
DL 0.01003
BEC 0.1458



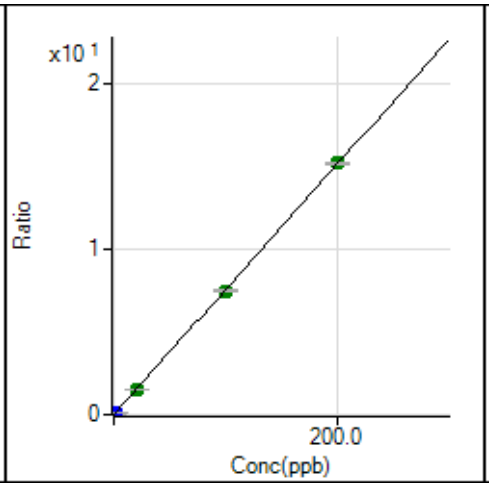
121 Sb [NoGas] / ISTD: 115 In
y = 2.409E-2 x + 9.543E-4
R 1.0000
DL 0.01431
BEC 0.03961



125 Te [NoGas] / ISTD: 115 In

y = 9.859E-4 x + 8.417E-6

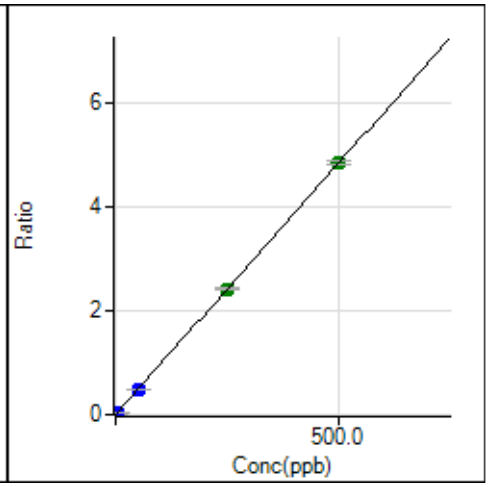
R	1.0000
DL	0.01098
BEC	0.008537



133 Cs [NoGas] / ISTD: 115 In

y = 7.576E-2 x + 1.680E-4

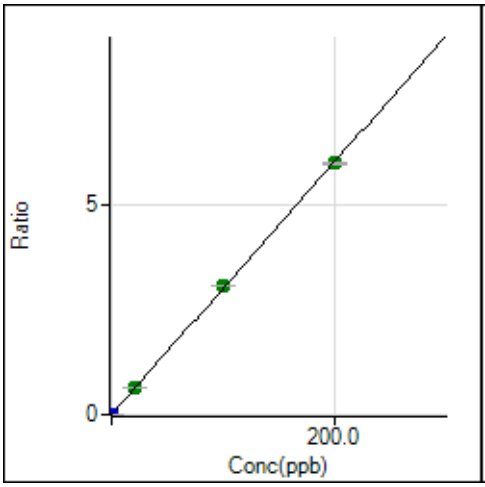
R	1.0000
DL	0.0001014
BEC	0.002218



137 Ba [NoGas] / ISTD: 115 In

y = 9.655E-3 x + 2.944E-5

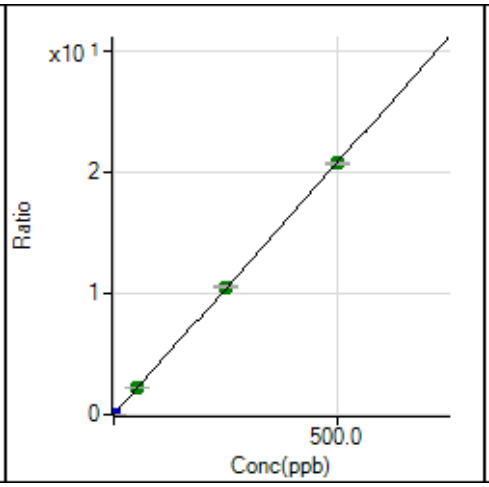
R	1.0000
DL	0.003211
BEC	0.00305



205 Tl [NoGas] / ISTD: 209 Bi

y = 3.016E-2 x + 2.031E-4

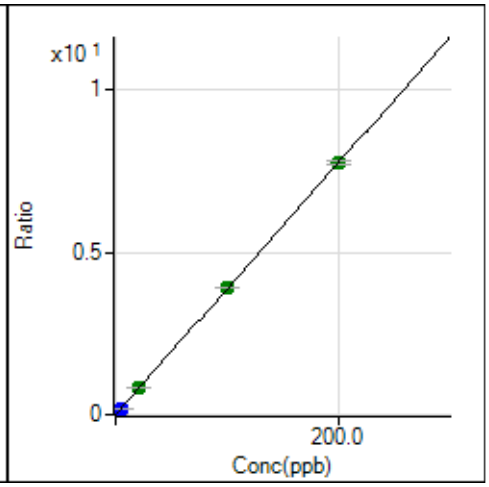
R	0.9999
DL	0.001425
BEC	0.006736



208 Pb [NoGas] / ISTD: 209 Bi

y = 4.157E-2 x + 2.340E-4

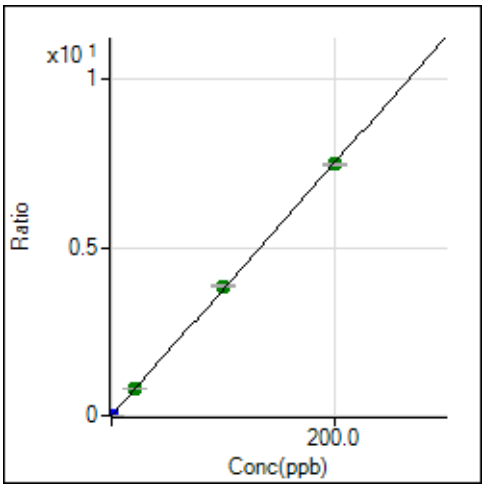
R	1.0000
DL	0.001015
BEC	0.005628



232 Th [NoGas] / ISTD: 209 Bi

y = 3.882E-2 x + 2.710E-5

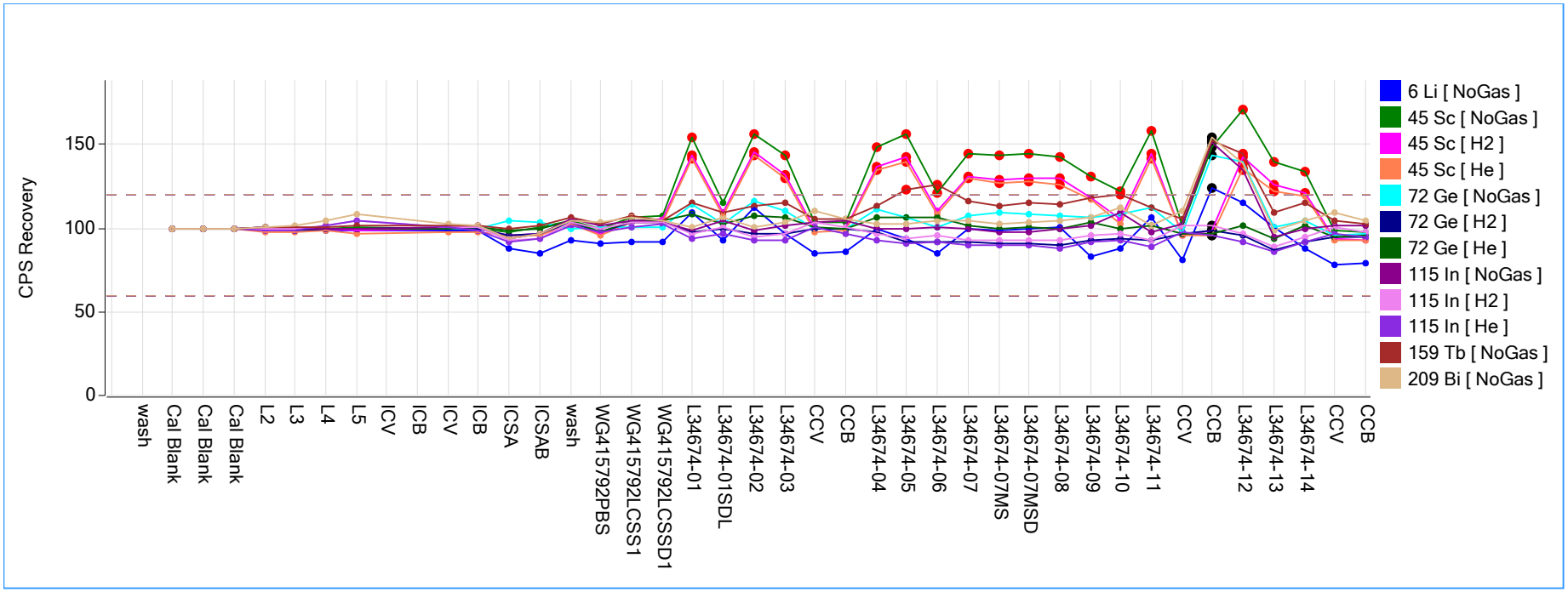
R	1.0000
DL	0.0002408
BEC	0.0006982



238 U [NoGas] / ISTD: 209 Bi

y = 3.758E-2 x + 1.709E-5

R	0.9999
DL	0.0003711
BEC	0.0004547


CPS Recovery
150
100
50
0
wash
Cal Blank
Cal Blank
Cal Blank
L2
L3
L4
L5
ICV
ICB
ICV
ICB
ICSA
ICSAB
wash
WG415792PBS
WG415792LCSS1
WG415792LCSSD1
L34674-01
L34674-01SDL
L34674-02
L34674-03
CCV
CCB
L34674-04
L34674-05
L34674-06
L34674-07
L34674-07MS
L34674-07MSD
L34674-08
L34674-09
L34674-10
L34674-11
CCV
CCB
L34674-12
L34674-13
L34674-14
CCV
CCB
6 Li [NoGas]
45 Sc [NoGas]
45 Sc [H2]
45 Sc [He]
72 Ge [NoGas]
72 Ge [H2]
72 Ge [He]
115 In [NoGas]
115 In [H2]
115 In [He]
159 Tb [NoGas]
209 Bi [NoGas]

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:01:22 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:03:20 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:05:18 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	104.44	4.9
11	B	6	NoGas	6679.32	3.5
27	Al	72	NoGas	10565.15	2.2
51	V	45	He	9172.95	2.0
52	Cr	45	He	214.45	15.6
55	Mn	72	NoGas	42939.46	0.9
56	Fe	45	H2	6315.87	0.8
59	Co	72	NoGas	1060.04	3.8
60	Ni	45	He	144.45	14.1
63	Cu	45	He	637.79	11.0
66	Zn	72	NoGas	2628.04	2.6
75	As	115	He	-38.18	-161.2
78	Se	115	H2	12.33	12.4
98	Mo	115	NoGas	214.73	14.5
107	Ag	115	NoGas	88.89	20.7
111	Cd	115	NoGas	9.15	122.9
118	Sn	115	NoGas	8234.74	2.7
121	Sb	115	NoGas	1961.26	6.1
125	Te	115	NoGas	16.67	40.0
133	Cs	115	NoGas	358.89	9.0
137	Ba	115	NoGas	77.78	10.8
205	Tl	209	NoGas	964.49	4.9
208	Pb	209	NoGas	936.69	4.0
232	Th	209	NoGas	123.33	35.8
238	U	209	NoGas	50	13.3

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	299895.56	0.6
45	Sc	NoGas	2240569.63	0.8
45	Sc	H2	585727.43	0.5
45	Sc	He	75452.04	0.4
72	Ge	NoGas	610452.16	0.1
72	Ge	H2	217844.59	0.5
72	Ge	He	58843.40	0.5
115	In	NoGas	2082657.26	1.3
115	In	H2	1291808.98	0.7
115	In	He	245360.92	0.6
159	Tb	NoGas	2621877.68	0.8
209	Bi	NoGas	2632023.09	0.5

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:07:15 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	103.33	17.1
11	B	6	NoGas	6549.25	1.7
27	Al	72	NoGas	10328.13	0.6
51	V	45	He	8999.51	0.1
52	Cr	45	He	228.89	16.4
55	Mn	72	NoGas	43028.59	0.7
56	Fe	45	H2	5717.82	3.3
59	Co	72	NoGas	966.71	8.6
60	Ni	45	He	94.44	18.1
63	Cu	45	He	608.9	6.9
66	Zn	72	NoGas	2602.47	1.3
75	As	115	He	13.42	498.5
78	Se	115	H2	13.33	11.5
98	Mo	115	NoGas	157.08	20.4
107	Ag	115	NoGas	112.22	31.8
111	Cd	115	NoGas	15.94	73.0
118	Sn	115	NoGas	8402.63	2.8
121	Sb	115	NoGas	1955.7	3.3
125	Te	115	NoGas	13.33	25.0
133	Cs	115	NoGas	373.34	15.6
137	Ba	115	NoGas	80	18.2
205	Tl	209	NoGas	692.25	3.9
208	Pb	209	NoGas	734.46	5.3
232	Th	209	NoGas	125.56	22.6
238	U	209	NoGas	45.56	36.1

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	303609.81	0.4
45	Sc	NoGas	2245333.45	0.8
45	Sc	H2	577087.37	0.7
45	Sc	He	74996.41	0.7
72	Ge	NoGas	613598.61	0.6
72	Ge	H2	215631.13	0.9
72	Ge	He	58691.62	0.5
115	In	NoGas	2094105.27	1.3
115	In	H2	1283338.00	0.7
115	In	He	245073.06	0.3
159	Tb	NoGas	2623865.94	0.4
209	Bi	NoGas	2664410.80	0.6

Sample Name	Cal Blank
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:09:12 PM
Sample Type	CalBlk
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	73.33	4.5
11	B	6	NoGas	6472.55	0.7
27	Al	72	NoGas	10748.53	13.5
51	V	45	He	8712.66	0.8
52	Cr	45	He	248.89	10.1
55	Mn	72	NoGas	41712.54	1.4
56	Fe	45	H2	5842.33	1.9
59	Co	72	NoGas	822.25	4.0
60	Ni	45	He	111.11	12.1
63	Cu	45	He	576.68	9.5
66	Zn	72	NoGas	3619.36	3.7
75	As	115	He	31.58	329.0
78	Se	115	H2	8.67	24.0
98	Mo	115	NoGas	196.11	19.0
107	Ag	115	NoGas	82.22	8.4
111	Cd	115	NoGas	9.88	79.2
118	Sn	115	NoGas	5592.37	2.0
121	Sb	115	NoGas	2013.54	12.4
125	Te	115	NoGas	17.78	43.3
133	Cs	115	NoGas	354.45	1.4
137	Ba	115	NoGas	62.22	35.7
205	Tl	209	NoGas	541.12	6.6
208	Pb	209	NoGas	623.34	6.1
232	Th	209	NoGas	72.22	11.6
238	U	209	NoGas	45.56	27.7

QC ISTD Table

Mass	Name	Tune Mode	CPS	CPS RSD
6	Li	NoGas	305531.94	0.6
45	Sc	NoGas	2236890.95	1.3
45	Sc	H2	575530.90	1.0
45	Sc	He	75575.01	2.3
72	Ge	NoGas	612217.62	0.6
72	Ge	H2	213670.36	1.2
72	Ge	He	58427.31	1.7
115	In	NoGas	2109467.73	0.8
115	In	H2	1282135.47	0.6
115	In	He	247218.64	0.7
159	Tb	NoGas	2633505.45	1.1
209	Bi	NoGas	2664349.82	0.7

Sample Name	L2
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:11:10 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	1931.25	1.4
11	B	6	NoGas	11411.09	2.1
27	Al	72	NoGas	244239.57	0.2
51	V	45	He	16433.83	0.3
52	Cr	45	He	18175.98	2.1
55	Mn	72	NoGas	281331.26	0.6
56	Fe	45	H2	245955.30	0.5
59	Co	72	NoGas	20431.25	0.8
60	Ni	45	He	13019.29	0.9
63	Cu	45	He	29060.60	2.4
66	Zn	72	NoGas	62956.96	1.3
75	As	115	He	1387.34	4.3
78	Se	115	H2	242.67	5.9
98	Mo	115	NoGas	95559.81	0.3
107	Ag	115	NoGas	16623.35	1.2
111	Cd	115	NoGas	6336.22	0.6
118	Sn	115	NoGas	24231.27	1.7
121	Sb	115	NoGas	101671.26	1.0
125	Te	115	NoGas	9836.89	1.7
133	Cs	115	NoGas	152304.76	0.3
137	Ba	115	NoGas	49842.93	0.5
205	Tl	209	NoGas	40484.70	0.3
208	Pb	209	NoGas	57372.62	1.1
232	Th	209	NoGas	547107.24	0.1
238	U	209	NoGas	51862.30	0.3

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	305907.25	0.2	100.12	60	120	
45	Sc	NoGas	2236890.95	2242539.50	0.3	100.25	60	120	
45	Sc	H2	575530.9	577129.89	0.6	100.28	60	120	
45	Sc	He	75575.01	73896.41	0.4	97.78	60	120	
72	Ge	NoGas	612217.62	612932.86	0.2	100.12	60	120	
72	Ge	H2	213670.36	214055.52	0.7	100.18	60	120	
72	Ge	He	58427.31	58359.23	1.5	99.88	60	120	
115	In	NoGas	2109467.73	2109640.34	0.4	100.01	60	120	
115	In	H2	1282135.47	1276180.19	0.6	99.54	60	120	
115	In	He	247218.64	244646.88	0.1	98.96	60	120	
159	Tb	NoGas	2633505.45	2662649.96	0.6	101.11	60	120	
209	Bi	NoGas	2664349.82	2689949.89	0.4	100.96	60	120	

Sample Name	L3
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:13:25 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	154460.60	0.4
11	B	6	NoGas	17228.95	1.4
27	Al	72	NoGas	4746479.53	0.9
51	V	45	He	167327.12	3.3
52	Cr	45	He	182386.59	4.1
55	Mn	72	NoGas	1984686.79	0.5
56	Fe	45	H2	2488712.75	0.3
59	Co	72	NoGas	1619311.88	0.3
60	Ni	45	He	215306.88	3.8
63	Cu	45	He	577816.96	3.6
66	Zn	72	NoGas	1096744.40	0.4
75	As	115	He	28528.33	3.4
78	Se	115	H2	51734.86	0.3
98	Mo	115	NoGas	772229.83	0.4
107	Ag	115	NoGas	314099.06	1.0
111	Cd	115	NoGas	257768.97	0.7
118	Sn	115	NoGas	790042.28	0.8
121	Sb	115	NoGas	128914.68	2.1
125	Te	115	NoGas	41943.93	1.8
133	Cs	115	NoGas	3114989.25	0.6
137	Ba	115	NoGas	1041825.24	0.3
205	Tl	209	NoGas	1748687.99	0.5
208	Pb	209	NoGas	5867245.67	0.2
232	Th	209	NoGas	2218652.34	0.4
238	U	209	NoGas	2188074.08	0.3

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	303609.48	0.3	99.37	60	120	
45	Sc	NoGas	2236890.95	2219446.65	0.2	99.22	60	120	
45	Sc	H2	575530.9	573104.44	0.3	99.58	60	120	
45	Sc	He	75575.01	73670.76	0.8	97.48	60	120	
72	Ge	NoGas	612217.62	609110.01	0.3	99.49	60	120	
72	Ge	H2	213670.36	211505.09	0.1	98.99	60	120	
72	Ge	He	58427.31	58067.98	0.4	99.38	60	120	
115	In	NoGas	2109467.73	2100295.56	0.8	99.57	60	120	
115	In	H2	1282135.47	1272403.18	0.3	99.24	60	120	
115	In	He	247218.64	244060.93	0.7	98.72	60	120	
159	Tb	NoGas	2633505.45	2653946.28	0.2	100.78	60	120	
209	Bi	NoGas	2664349.82	2714412.53	0.7	101.88	60	120	

Sample Name	L4
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:15:37 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	779515.58	0.6
11	B	6	NoGas	58711.29	1.1
27	Al	72	NoGas	23705174.61	0.8
51	V	45	He	796571.20	2.6
52	Cr	45	He	925395.80	3.2
55	Mn	72	NoGas	9713957.95	0.5
56	Fe	45	H2	12395742.28	0.5
59	Co	72	NoGas	8045535.23	1.0
60	Ni	45	He	1095844.09	2.7
63	Cu	45	He	2820933.08	2.3
66	Zn	72	NoGas	5452368.95	0.8
75	As	115	He	146486.74	1.6
78	Se	115	H2	258488.70	0.4
98	Mo	115	NoGas	3813190.42	0.8
107	Ag	115	NoGas	1571557.26	0.5
111	Cd	115	NoGas	1295547.85	0.4
118	Sn	115	NoGas	3815229.15	1.4
121	Sb	115	NoGas	624466.28	1.3
125	Te	115	NoGas	206225.39	0.7
133	Cs	115	NoGas	15666739.93	0.7
137	Ba	115	NoGas	5054025.22	0.9
205	Tl	209	NoGas	8616424.10	0.2
208	Pb	209	NoGas	29360017.44	0.6
232	Th	209	NoGas	10952533.45	0.6
238	U	209	NoGas	10733997.35	1.0

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	302704.01	0.5	99.07	60	120	
45	Sc	NoGas	2236890.95	2224220.81	0.7	99.43	60	120	
45	Sc	H2	575530.9	570836.11	0.3	99.18	60	120	
45	Sc	He	75575.01	74258.28	0.9	98.26	60	120	
72	Ge	NoGas	612217.62	610483.50	0.0	99.72	60	120	
72	Ge	H2	213670.36	212955.59	0.1	99.67	60	120	
72	Ge	He	58427.31	58342.40	0.5	99.85	60	120	
115	In	NoGas	2109467.73	2092687.85	1.0	99.2	60	120	
115	In	H2	1282135.47	1308998.59	0.3	102.1	60	120	
115	In	He	247218.64	250657.56	1.2	101.39	60	120	
159	Tb	NoGas	2633505.45	2659129.06	0.5	100.97	60	120	
209	Bi	NoGas	2664349.82	2796157.32	0.8	104.95	60	120	

Sample Name	L5
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:17:45 PM
Sample Type	CalStd
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	CPS	CPS RSD
9	Be	6	NoGas	1564761.50	1.4
11	B	6	NoGas	111609.30	1.5
27	Al	72	NoGas	47972532.54	1.9
51	V	45	He	1578733.41	1.5
52	Cr	45	He	1883325.00	1.7
55	Mn	72	NoGas	19721722.55	1.1
56	Fe	45	H2	25344275.66	0.7
59	Co	72	NoGas	16362410.46	1.6
60	Ni	45	He	2221817.48	1.3
63	Cu	45	He	5781532.13	1.7
66	Zn	72	NoGas	11039243.45	1.5
75	As	115	He	300138.43	1.1
78	Se	115	H2	517590.89	0.9
98	Mo	115	NoGas	7778348.05	1.7
107	Ag	115	NoGas	3143044.39	1.3
111	Cd	115	NoGas	2619977.52	1.5
118	Sn	115	NoGas	7647225.53	1.6
121	Sb	115	NoGas	1272107.55	2.2
125	Te	115	NoGas	414580.20	1.0
133	Cs	115	NoGas	31952844.29	0.8
137	Ba	115	NoGas	10144045.98	1.0
205	Tl	209	NoGas	17356199.31	0.8
208	Pb	209	NoGas	60005853.17	1.5
232	Th	209	NoGas	22417584.11	1.9
238	U	209	NoGas	21626119.14	1.6

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	301237.85	0.4	98.59	60	120	
45	Sc	NoGas	2236890.95	2246333.94	0.1	100.42	60	120	
45	Sc	H2	575530.9	566840.37	0.7	98.49	60	120	
45	Sc	He	75575.01	73214.01	0.5	96.88	60	120	
72	Ge	NoGas	612217.62	611135.22	0.2	99.82	60	120	
72	Ge	H2	213670.36	212476.78	0.4	99.44	60	120	
72	Ge	He	58427.31	58045.68	0.6	99.35	60	120	
115	In	NoGas	2109467.73	2102393.68	0.8	99.66	60	120	
115	In	H2	1282135.47	1342610.54	0.7	104.72	60	120	
115	In	He	247218.64	257303.41	1.1	104.08	60	120	
159	Tb	NoGas	2633505.45	2683447.46	0.3	101.9	60	120	
209	Bi	NoGas	2664349.82	2895304.88	0.8	108.67	60	120	

Sample Name	ICV
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:19:52 PM
Sample Type	ICV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag

Sample Name	ICB
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:21:50 PM
Sample Type	ICB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag

Sample Name ICV

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:27:19 PM

Sample Type ICV

Total Dilution 1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	48.023	2.8	50	96.05	
11	B	6	NoGas	19.309	3.2	20	96.54	
27	Al	72	NoGas	99.873	3.2	100	99.87	
51	V	45	He	49.626	0.7	50	99.25	
52	Cr	45	He	51.696	0.9	50	103.39	
55	Mn	72	NoGas	49.433	3.0	50	98.87	
56	Fe	45	H2	99.933	0.9	100	99.93	
59	Co	72	NoGas	50.637	3.4	50	101.27	
60	Ni	45	He	51.151	0.2	50	102.3	
63	Cu	45	He	53.343	0.9	50	106.69	
66	Zn	72	NoGas	51.436	3.2	50	102.87	
75	As	115	He	50.124	0.8	50	100.25	
78	Se	115	H2	53.371	0.6	50	106.74	
98	Mo	115	NoGas	18.722	3.3	20	93.61	
107	Ag	115	NoGas	19.145	2.4	20	95.72	
111	Cd	115	NoGas	49.575	2.8	50	99.15	
118	Sn	115	NoGas	48.612	3.1	50	97.22	
121	Sb	115	NoGas	19.736	3.7	20	98.68	
125	Te	115	NoGas	49.686	3.0	50	99.37	
133	Cs	115	NoGas	49.227	2.1	50	98.45	
137	Ba	115	NoGas	49.025	2.8	50	98.05	
205	Tl	209	NoGas	54.591	1.2	50	109.18	
208	Pb	209	NoGas	53.459	2.1	50	106.92	
232	Th	209	NoGas	51.921	2.5	50	103.84	
238	U	209	NoGas	52.769	2.7	50	105.54	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	300705.56	0.8	98.42	60	120	
45	Sc	NoGas	2236890.95	2233922.90	1.2	99.87	60	120	
45	Sc	H2	575530.9	572491.16	0.7	99.47	60	120	
45	Sc	He	75575.01	73809.26	1.1	97.66	60	120	
72	Ge	NoGas	612217.62	612246.83	0.4	100	60	120	
72	Ge	H2	213670.36	214979.21	0.5	100.61	60	120	
72	Ge	He	58427.31	58510.95	0.7	100.14	60	120	
115	In	NoGas	2109467.73	2131838.33	0.5	101.06	60	120	
115	In	H2	1282135.47	1295529.95	0.3	101.04	60	120	
115	In	He	247218.64	249832.75	0.9	101.06	60	120	
159	Tb	NoGas	2633505.45	2688933.50	1.5	102.1	60	120	
209	Bi	NoGas	2664349.82	2733380.79	0.8	102.59	60	120	

Sample Name	ICB
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:29:16 PM
Sample Type	ICB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.134	21.2	0.11	ICB FAIL
11	B	6	NoGas	0.251	19.8	1.1	
27	Al	72	NoGas	0.178	27.0	2.2	
51	V	45	He	-0.194	N/A	0.44	
52	Cr	45	He	0.031	7.3	1.1	
55	Mn	72	NoGas	0.085	26.6	1.1	
59	Co	72	NoGas	0.096	23.8	0.11	
60	Ni	45	He	0.027	21.7	1.32	
63	Cu	45	He	0.034	1.3	1.1	
66	Zn	72	NoGas	0.111	26.5	4.4	
75	As	115	He	0.059	37.8	0.44	
78	Se	115	H2	0.083	3.4	0.22	
107	Ag	115	NoGas	0.037	25.1	0.11	
111	Cd	115	NoGas	0.097	23.9	0.22	
118	Sn	115	NoGas	0.113	21.6	0.22	
121	Sb	115	NoGas	0.109	18.7	0.88	
125	Te	115	NoGas	0.114	28.1	2.2	
133	Cs	115	NoGas	0.094	24.2	0.44	
137	Ba	115	NoGas	0.095	23.1	1.1	
205	Tl	209	NoGas	0.102	24.8	0.22	
208	Pb	209	NoGas	0.115	22.3	0.22	
232	Th	209	NoGas	0.112	24.8	2.2	
238	U	209	NoGas	0.102	23.9	0.22	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	300725.97	0.1	98.43	60	120	
45	Sc	NoGas	2236890.95	2236461.79	0.3	99.98	60	120	
45	Sc	H2	575530.9	571050.43	0.5	99.22	60	120	
45	Sc	He	75575.01	74113.04	0.5	98.07	60	120	
72	Ge	NoGas	612217.62	609516.71	0.5	99.56	60	120	
72	Ge	H2	213670.36	214004.67	0.6	100.16	60	120	
72	Ge	He	58427.31	58921.45	0.5	100.85	60	120	
115	In	NoGas	2109467.73	2141048.61	0.2	101.5	60	120	
115	In	H2	1282135.47	1289832.69	0.5	100.6	60	120	
115	In	He	247218.64	245167.84	1.2	99.17	60	120	
159	Tb	NoGas	2633505.45	2687436.07	0.5	102.05	60	120	
209	Bi	NoGas	2664349.82	2716323.09	0.6	101.95	60	120	

Sample Name	ICSA
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:31:17 PM
Sample Type	ICSA
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Conc.	Conc. RSD	ExpValue	%QC Low	%QC High	QC Flag
9	Be	6	NoGas	0.034	17.4			500	
11	B	6	NoGas	1.311	4.6			500	
27	Al	72	NoGas	42543.591	3.4			5500000	
51	V	45	He	-0.827	N/A			500	
52	Cr	45	He	0.236	4.1			500	
55	Mn	72	NoGas	0.464	4.1			500	
59	Co	72	NoGas	0.215	1.5			500	
60	Ni	45	He	0.185	13.9			500	
63	Cu	45	He	0.173	2.4			500	
66	Zn	72	NoGas	1.705	1.5			500	
75	As	115	He	0.128	41.2			500	
78	Se	115	H2	0.081	6.4			500	
107	Ag	115	NoGas	0.070	3.3			500	
111	Cd	115	NoGas	0.088	13.6			500	
118	Sn	115	NoGas	0.332	1.5			500	
121	Sb	115	NoGas	0.166	4.1			500	
125	Te	115	NoGas	0.028	13.9			500	
133	Cs	115	NoGas	0.031	23.6			500	
137	Ba	115	NoGas	0.392	1.8			500	
205	Tl	209	NoGas	0.020	35.7			500	
208	Pb	209	NoGas	0.072	7.1			500	
232	Th	209	NoGas	0.036	6.8			500	
238	U	209	NoGas	0.019	8.7			500	

QC ISTD Table

Mass	Name	Tune Mode	Ref CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.943333333	269246.50	0.6	88.12	60	120	
45	Sc	NoGas	2236890.95333333	2187796.30	1.2	97.81	60	120	
45	Sc	H2	575530.896666667	550923.17	0.2	95.72	60	120	
45	Sc	He	75575.0133333333	72436.81	0.2	95.85	60	120	
72	Ge	NoGas	612217.616666667	638471.08	0.6	104.29	60	120	
72	Ge	H2	213670.363333333	204179.80	0.3	95.56	60	120	
72	Ge	He	58427.3133333333	57866.10	0.5	99.04	60	120	
115	In	NoGas	2109467.73	1976140.62	1.2	93.68	60	120	
115	In	H2	1282135.46666667	1190598.95	0.3	92.86	60	120	
115	In	He	247218.636666667	227596.34	0.1	92.06	60	120	
159	Tb	NoGas	2633505.45	2633427.74	0.9	100	60	120	
209	Bi	NoGas	2664349.82333333	2506766.98	1.1	94.09	60	120	

Sample Name	ICSAB
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:33:21 PM
Sample Type	ICSB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Conc.	Conc. RSD	ExpValue	%QC Low	%QC High	QC Flag
9	Be	6	NoGas	19.090	2.4	100	80	120	
11	B	6	NoGas	10.889	3.8	100	80	120	
51	V	45	He	18.271	0.2	100	80	120	
52	Cr	45	He	18.495	0.4	100	80	120	
55	Mn	72	NoGas	18.004	2.9	100	80	120	
59	Co	72	NoGas	17.088	3.1	100	80	120	
60	Ni	45	He	17.951	1.0	100	80	120	
63	Cu	45	He	17.573	0.9	100	80	120	
66	Zn	72	NoGas	18.743	2.3	100	80	120	
75	As	115	He	20.679	1.6	100	80	120	
78	Se	115	H2	20.881	0.7	100	80	120	
107	Ag	115	NoGas	8.725	1.4	100	80	120	
111	Cd	115	NoGas	18.249	1.6	100	80	120	
118	Sn	115	NoGas	18.772	2.0	100	80	120	
121	Sb	115	NoGas	9.588	1.4	100	80	120	
125	Te	115	NoGas	18.273	1.3	100	80	120	
133	Cs	115	NoGas	18.845	0.9	100	80	120	
137	Ba	115	NoGas	18.508	1.7	100	80	120	
205	Tl	209	NoGas	19.864	1.7	100	80	120	
208	Pb	209	NoGas	19.227	1.5	100	80	120	
232	Th	209	NoGas	51.843	2.7	100	80	120	
238	U	209	NoGas	20.821	2.4	100	80	120	

QC ISTD Table

Mass	Name	Tune Mode	Ref CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.943333333	260537.60	0.6	85.27	60	120	
45	Sc	NoGas	2236890.95333333	2244432.13	1.2	100.34	60	120	
45	Sc	H2	575530.896666667	555127.77	0.1	96.45	60	120	
45	Sc	He	75575.0133333333	72402.22	0.3	95.8	60	120	
72	Ge	NoGas	612217.616666667	636869.30	0.8	104.03	60	120	
72	Ge	H2	213670.363333333	207087.44	0.4	96.92	60	120	
72	Ge	He	58427.3133333333	58334.58	1.1	99.84	60	120	
115	In	NoGas	2109467.73	2030688.94	1.5	96.27	60	120	
115	In	H2	1282135.46666667	1204131.41	0.9	93.92	60	120	
115	In	He	247218.636666667	231365.54	0.4	93.59	60	120	
159	Tb	NoGas	2633505.45	2687053.64	0.9	102.03	60	120	
209	Bi	NoGas	2664349.82333333	2577660.45	1.6	96.75	60	120	

Sample Name	wash
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:35:25 PM
Sample Type	Sample
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	0.052	0.05	ppb	14.8	200	
11	B	6	NoGas	0.176	0.18	ppb	0.0	20	
27	Al	72	NoGas	99.699	99.7	ppb	17.4	1000	
51	V	45	He	-0.948	-0.95	ppb	4.3	200	
52	Cr	45	He	0.005	0	ppb	11.9	200	
55	Mn	72	NoGas	0.008	0.01	ppb	1.8	200	
56	Fe	45	H2	48.043	48.04	ppb	10.4	1000	
59	Co	72	NoGas	0.032	0.03	ppb	15.9	200	
60	Ni	45	He	0.018	0.02	ppb	15.2	500	
63	Cu	45	He	0.252	0.25	ppb	1.9	500	
66	Zn	72	NoGas	0.524	0.52	ppb	3.1	1000	
75	As	115	He	-0.036	-0.04	ppb	-406.2	200	
78	Se	115	H2	0.020	0.02	ppb	25.1	500	
98	Mo	115	NoGas	1.735	1.74	ppb	18.8	200	
107	Ag	115	NoGas	0.017	0.02	ppb	20.6	50	
111	Cd	115	NoGas	0.031	0.03	ppb	26.8	200	
118	Sn	115	NoGas	0.002	0	ppb	8.0	200	
121	Sb	115	NoGas	0.017	0.02	ppb	10.1	25	
125	Te	115	NoGas	0.041	0.04	ppb	23.0	200	
133	Cs	115	NoGas	0.031	0.03	ppb	20.1	200	
137	Ba	115	NoGas	0.050	0.05	ppb	10.1	500	
205	Tl	209	NoGas	0.036	0.04	ppb	13.5	200	
208	Pb	209	NoGas	0.041	0.04	ppb	16.8	500	
232	Th	209	NoGas	0.086	0.09	ppb	19.4	200	
238	U	209	NoGas	0.035	0.04	ppb	20.4	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	283965.47	0.3	92.94	60	120	
45	Sc	NoGas	2236890.95	2348217.27	0.5	104.98	60	120	
45	Sc	H2	575530.9	592603.97	0.4	102.97	60	120	
45	Sc	He	75575.01	77359.87	0.8	102.36	60	120	
72	Ge	NoGas	612217.62	611839.49	0.7	99.94	60	120	
72	Ge	H2	213670.36	222289.94	0.7	104.03	60	120	
72	Ge	He	58427.31	61058.30	0.7	104.5	60	120	
115	In	NoGas	2109467.73	2217362.55	0.4	105.11	60	120	
115	In	H2	1282135.47	1326152.73	0.2	103.43	60	120	
115	In	He	247218.64	251905.53	0.6	101.9	60	120	
159	Tb	NoGas	2633505.45	2793107.67	0.7	106.06	60	120	
209	Bi	NoGas	2664349.82	2797343.22	0.4	104.99	60	120	

Sample Name WG415792PBS

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:37:24 PM

Sample Type Sample

Total Dilution 500.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	7.167	0.01	ppb	11.2	200	
11	B	6	NoGas	525.793	1.05	ppb	0.3	20	
27	Al	72	NoGas	3465.328	6.93	ppb	18.5	1000	
51	V	45	He	274.810	0.55	ppb	1.4	200	
52	Cr	45	He	43.051	0.09	ppb	5.0	200	
55	Mn	72	NoGas	40.169	0.08	ppb	1.0	200	
56	Fe	45	H2	2818.960	5.64	ppb	3.6	1000	
59	Co	72	NoGas	2.159	0	ppb	6.3	200	
60	Ni	45	He	29.733	0.06	ppb	5.6	500	
63	Cu	45	He	81.735	0.16	ppb	7.9	500	
66	Zn	72	NoGas	768.518	1.54	ppb	1.6	1000	
75	As	115	He	35.655	0.07	ppb	25.0	200	
78	Se	115	H2	35.784	0.07	ppb	11.3	500	
98	Mo	115	NoGas	87.340	0.18	ppb	17.8	200	
107	Ag	115	NoGas	2.536	0	ppb	12.5	50	
111	Cd	115	NoGas	4.504	0.01	ppb	33.5	200	
118	Sn	115	NoGas	3539.214	7.08	ppb	3.7	200	
121	Sb	115	NoGas	34.089	0.07	ppb	5.1	25	
125	Te	115	NoGas	2.791	0.01	ppb	58.8	200	
133	Cs	115	NoGas	1.649	0	ppb	5.0	200	
137	Ba	115	NoGas	7.849	0.02	ppb	18.0	500	
205	Tl	209	NoGas	4.809	0.01	ppb	33.0	200	
208	Pb	209	NoGas	26.990	0.05	ppb	27.5	500	
232	Th	209	NoGas	3.614	0.01	ppb	15.4	200	
238	U	209	NoGas	1.592	0	ppb	18.9	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	276331.47	0.7	90.44	60	120	
45	Sc	NoGas	2236890.95	2238030.60	0.8	100.05	60	120	
45	Sc	H2	575530.9	557041.42	0.5	96.79	60	120	
45	Sc	He	75575.01	72295.00	0.1	95.66	60	120	
72	Ge	NoGas	612217.62	615453.47	0.2	100.53	60	120	
72	Ge	H2	213670.36	208428.18	1.0	97.55	60	120	
72	Ge	He	58427.31	56998.14	0.4	97.55	60	120	
115	In	NoGas	2109467.73	2150564.58	0.8	101.95	60	120	
115	In	H2	1282135.47	1279963.32	0.5	99.83	60	120	
115	In	He	247218.64	241603.98	0.5	97.73	60	120	
159	Tb	NoGas	2633505.45	2698494.55	1.3	102.47	60	120	
209	Bi	NoGas	2664349.82	2756590.93	0.6	103.46	60	120	

Sample Name WG415792LCSS1

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:39:23 PM

Sample Type Sample

Total Dilution 5000.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	92609.548	18.52	ppb	4.2	200	
11	B	6	NoGas	124587.556	24.92	ppb	4.1	20	OCAL
27	Al	72	NoGas	8134471.651	1626.89	ppb	4.1	1000	OCAL
51	V	45	He	103538.912	20.71	ppb	0.3	200	
52	Cr	45	He	133944.274	26.79	ppb	0.6	200	
55	Mn	72	NoGas	354966.234	70.99	ppb	3.5	200	
56	Fe	45	H2	14851536.678	2970.31	ppb	0.8	1000	OCAL
59	Co	72	NoGas	153648.850	30.73	ppb	3.7	200	
60	Ni	45	He	121220.198	24.24	ppb	0.5	500	
63	Cu	45	He	166343.868	33.27	ppb	0.5	500	
66	Zn	72	NoGas	197478.453	39.5	ppb	3.2	1000	
75	As	115	He	145028.885	29.01	ppb	0.7	200	
78	Se	115	H2	178236.009	35.65	ppb	0.6	500	
98	Mo	115	NoGas	107648.025	21.53	ppb	3.3	200	
107	Ag	115	NoGas	29135.805	5.83	ppb	2.7	50	
111	Cd	115	NoGas	81189.495	16.24	ppb	2.5	200	
118	Sn	115	NoGas	140516.389	28.1	ppb	3.3	200	
121	Sb	115	NoGas	72087.477	14.42	ppb	3.8	25	
125	Te	115	NoGas	26.095	0	ppb	22.2	200	
133	Cs	115	NoGas	1347.626	0.27	ppb	1.3	200	
137	Ba	115	NoGas	191086.501	38.22	ppb	3.1	500	
205	Tl	209	NoGas	150690.427	30.14	ppb	3.1	200	
208	Pb	209	NoGas	147408.558	29.48	ppb	3.2	500	
232	Th	209	NoGas	19919.574	3.98	ppb	3.3	200	
238	U	209	NoGas	16566.693	3.31	ppb	3.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	279212.60	0.4	91.39	60	120	
45	Sc	NoGas	2236890.95	2387677.06	0.3	106.74	60	120	
45	Sc	H2	575530.9	603087.23	0.5	104.79	60	120	
45	Sc	He	75575.01	78241.31	0.4	103.53	60	120	
72	Ge	NoGas	612217.62	618816.95	0.3	101.08	60	120	
72	Ge	H2	213670.36	221477.67	0.6	103.65	60	120	
72	Ge	He	58427.31	61029.35	1.0	104.45	60	120	
115	In	NoGas	2109467.73	2210957.56	0.3	104.81	60	120	
115	In	H2	1282135.47	1330695.99	0.4	103.79	60	120	
115	In	He	247218.64	249744.13	0.1	101.02	60	120	
159	Tb	NoGas	2633505.45	2820128.71	0.8	107.09	60	120	
209	Bi	NoGas	2664349.82	2835834.96	0.6	106.44	60	120	

Sample Name WG415792LCSSD1

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:41:22 PM

Sample Type Sample

Total Dilution 5000.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	94482.322	18.9	ppb	3.3	200	
11	B	6	NoGas	125493.144	25.1	ppb	3.4	20	OCAL
27	Al	72	NoGas	8336164.802	1667.23	ppb	4.0	1000	OCAL
51	V	45	He	105681.245	21.14	ppb	0.2	200	
52	Cr	45	He	136154.625	27.23	ppb	0.2	200	
55	Mn	72	NoGas	310044.944	62.01	ppb	3.6	200	
56	Fe	45	H2	15241549.442	3048.31	ppb	0.3	1000	OCAL
59	Co	72	NoGas	153798.797	30.76	ppb	3.7	200	
60	Ni	45	He	122608.222	24.52	ppb	1.0	500	
63	Cu	45	He	167889.445	33.58	ppb	0.5	500	
66	Zn	72	NoGas	197883.219	39.58	ppb	3.7	1000	
75	As	115	He	142808.129	28.56	ppb	1.6	200	
78	Se	115	H2	181249.221	36.25	ppb	1.1	500	
98	Mo	115	NoGas	108143.940	21.63	ppb	3.1	200	
107	Ag	115	NoGas	28968.967	5.79	ppb	2.8	50	
111	Cd	115	NoGas	81324.108	16.26	ppb	3.3	200	
118	Sn	115	NoGas	141464.020	28.29	ppb	3.3	200	
121	Sb	115	NoGas	73224.225	14.64	ppb	3.0	25	
125	Te	115	NoGas	26.763	0	ppb	11.1	200	
133	Cs	115	NoGas	1367.184	0.27	ppb	1.6	200	
137	Ba	115	NoGas	190710.956	38.14	ppb	3.5	500	
205	Tl	209	NoGas	148386.296	29.68	ppb	3.1	200	
208	Pb	209	NoGas	148651.105	29.73	ppb	3.3	500	
232	Th	209	NoGas	20122.067	4.02	ppb	3.3	200	
238	U	209	NoGas	16886.860	3.38	ppb	3.9	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	282098.11	1.4	92.33	60	120	
45	Sc	NoGas	2236890.95	2400509.56	1.3	107.31	60	120	
45	Sc	H2	575530.9	608725.56	1.0	105.77	60	120	
45	Sc	He	75575.01	78643.33	0.7	104.06	60	120	
72	Ge	NoGas	612217.62	617461.97	0.5	100.86	60	120	
72	Ge	H2	213670.36	221628.03	0.3	103.72	60	120	
72	Ge	He	58427.31	61102.85	1.0	104.58	60	120	
115	In	NoGas	2109467.73	2189210.52	1.0	103.78	60	120	
115	In	H2	1282135.47	1323681.44	0.1	103.24	60	120	
115	In	He	247218.64	253481.32	0.8	102.53	60	120	
159	Tb	NoGas	2633505.45	2764998.22	0.5	104.99	60	120	
209	Bi	NoGas	2664349.82	2780568.64	0.9	104.36	60	120	

Sample Name L34674-01

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:43:21 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1052.303	2.06	ppb	3.2	200	
11	B	6	NoGas	13603.716	26.67	ppb	2.9	20	OCAL
27	Al	72	NoGas	20733126.337	40653.19	ppb	3.7	1000	OCAL
51	V	45	He	38565.375	75.62	ppb	1.0	200	
52	Cr	45	He	42420.793	83.18	ppb	0.6	200	
55	Mn	72	NoGas	2796677.980	5483.68	ppb	3.7	200	OCAL
56	Fe	45	H2	19894940.294	39009.69	ppb	0.4	1000	OCAL
59	Co	72	NoGas	10933.443	21.44	ppb	3.5	200	
60	Ni	45	He	31667.178	62.09	ppb	1.1	500	
63	Cu	45	He	23106.434	45.31	ppb	1.3	500	
66	Zn	72	NoGas	208799.735	409.41	ppb	3.4	1000	
75	As	115	He	7173.566	14.07	ppb	1.0	200	
78	Se	115	H2	2209.078	4.33	ppb	2.4	500	
98	Mo	115	NoGas	2934.329	5.75	ppb	2.0	200	
107	Ag	115	NoGas	522.898	1.02	ppb	1.8	50	
111	Cd	115	NoGas	6766.971	13.27	ppb	2.4	200	
118	Sn	115	NoGas	4222.171	8.28	ppb	2.5	200	
121	Sb	115	NoGas	295.460	0.58	ppb	0.2	25	
125	Te	115	NoGas	55.933	0.11	ppb	11.7	200	
133	Cs	115	NoGas	2705.538	5.3	ppb	2.1	200	
137	Ba	115	NoGas	211255.446	414.23	ppb	3.2	500	
205	Tl	209	NoGas	348.289	0.68	ppb	1.0	200	
208	Pb	209	NoGas	17967.933	35.23	ppb	3.3	500	
232	Th	209	NoGas	6718.013	13.17	ppb	3.7	200	
238	U	209	NoGas	4757.920	9.33	ppb	3.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	334418.24	0.6	109.45	60	120	
45	Sc	NoGas	2236890.95	3458822.78	2.4	154.63	60	120	FAIL
45	Sc	H2	575530.9	828228.82	0.5	143.91	60	120	FAIL
45	Sc	He	75575.01	107357.26	1.3	142.05	60	120	FAIL
72	Ge	NoGas	612217.62	698538.88	1.2	114.1	60	120	
72	Ge	H2	213670.36	208559.22	1.4	97.61	60	120	
72	Ge	He	58427.31	63123.78	1.5	108.04	60	120	
115	In	NoGas	2109467.73	2090723.24	1.7	99.11	60	120	
115	In	H2	1282135.47	1236514.29	1.2	96.44	60	120	
115	In	He	247218.64	232816.37	1.1	94.17	60	120	
159	Tb	NoGas	2633505.45	3026208.84	2.4	114.91	60	120	
209	Bi	NoGas	2664349.82	2681436.49	2.4	100.64	60	120	

Sample Name L34674-01SDL

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:45:27 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	260.920	0.51	ppb	2.0	200	
11	B	6	NoGas	3461.715	6.79	ppb	3.0	20	
27	Al	72	NoGas	4798844.364	9409.5	ppb	3.9	1000	OCAL
51	V	45	He	9890.058	19.39	ppb	3.1	200	
52	Cr	45	He	11285.627	22.13	ppb	3.4	200	
55	Mn	72	NoGas	650332.279	1275.16	ppb	3.6	200	OCAL
56	Fe	45	H2	5349170.893	10488.57	ppb	1.8	1000	OCAL
59	Co	72	NoGas	2436.965	4.78	ppb	4.1	200	
60	Ni	45	He	9200.347	18.04	ppb	7.8	500	
63	Cu	45	He	6368.310	12.49	ppb	1.6	500	
66	Zn	72	NoGas	48237.933	94.58	ppb	3.3	1000	
75	As	115	He	1488.507	2.92	ppb	3.0	200	
78	Se	115	H2	456.692	0.9	ppb	12.4	500	
98	Mo	115	NoGas	571.822	1.12	ppb	3.3	200	
107	Ag	115	NoGas	101.550	0.2	ppb	3.8	50	
111	Cd	115	NoGas	1316.102	2.58	ppb	2.3	200	
118	Sn	115	NoGas	812.483	1.59	ppb	2.3	200	
121	Sb	115	NoGas	54.606	0.11	ppb	1.7	25	
125	Te	115	NoGas	7.927	0.02	ppb	51.6	200	
133	Cs	115	NoGas	540.132	1.06	ppb	2.3	200	
137	Ba	115	NoGas	42315.716	82.97	ppb	2.5	500	
205	Tl	209	NoGas	64.093	0.13	ppb	2.2	200	
208	Pb	209	NoGas	3519.029	6.9	ppb	2.9	500	
232	Th	209	NoGas	1315.792	2.58	ppb	3.4	200	
238	U	209	NoGas	930.919	1.82	ppb	3.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	284383.74	0.8	93.08	60	120	
45	Sc	NoGas	2236890.95	2582446.49	0.5	115.45	60	120	
45	Sc	H2	575530.9	629205.25	0.9	109.33	60	120	
45	Sc	He	75575.01	81440.01	0.9	107.76	60	120	
72	Ge	NoGas	612217.62	625363.55	0.4	102.15	60	120	
72	Ge	H2	213670.36	213528.37	0.6	99.93	60	120	
72	Ge	He	58427.31	60195.97	1.4	103.03	60	120	
115	In	NoGas	2109467.73	2197139.92	0.3	104.16	60	120	
115	In	H2	1282135.47	1284796.51	1.0	100.21	60	120	
115	In	He	247218.64	238410.30	1.7	96.44	60	120	
159	Tb	NoGas	2633505.45	2877782.46	0.5	109.28	60	120	
209	Bi	NoGas	2664349.82	2825180.72	0.2	106.04	60	120	

Sample Name L34674-02

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:47:30 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	937.136	1.84	ppb	2.9	200	
11	B	6	NoGas	14530.755	28.49	ppb	2.8	20	OCAL
27	Al	72	NoGas	21188983.297	41547.03	ppb	3.8	1000	OCAL
51	V	45	He	22145.835	43.42	ppb	1.3	200	
52	Cr	45	He	19718.018	38.66	ppb	1.2	200	
55	Mn	72	NoGas	4358710.981	8546.49	ppb	3.8	200	OCAL
56	Fe	45	H2	24542527.755	48122.6	ppb	0.3	1000	OCAL
59	Co	72	NoGas	14492.885	28.42	ppb	3.7	200	
60	Ni	45	He	23579.529	46.23	ppb	0.4	500	
63	Cu	45	He	16940.103	33.22	ppb	0.8	500	
66	Zn	72	NoGas	480502.949	942.16	ppb	3.2	1000	
75	As	115	He	6074.644	11.91	ppb	1.2	200	
78	Se	115	H2	196.348	0.38	ppb	4.6	500	
98	Mo	115	NoGas	2391.146	4.69	ppb	3.0	200	
107	Ag	115	NoGas	75.555	0.15	ppb	4.8	50	
111	Cd	115	NoGas	819.391	1.61	ppb	4.5	200	
118	Sn	115	NoGas	4042.076	7.93	ppb	3.6	200	
121	Sb	115	NoGas	135.355	0.26	ppb	1.6	25	
125	Te	115	NoGas	32.600	0.06	ppb	11.5	200	
133	Cs	115	NoGas	3148.656	6.17	ppb	2.3	200	
137	Ba	115	NoGas	206245.513	404.4	ppb	3.8	500	
205	Tl	209	NoGas	221.160	0.43	ppb	3.6	200	
208	Pb	209	NoGas	21721.239	42.59	ppb	3.6	500	
232	Th	209	NoGas	6633.299	13.01	ppb	4.3	200	
238	U	209	NoGas	615.749	1.21	ppb	3.4	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	344296.92	0.5	112.69	60	120	
45	Sc	NoGas	2236890.95	3498874.93	2.5	156.42	60	120	FAIL
45	Sc	H2	575530.9	836929.24	0.2	145.42	60	120	FAIL
45	Sc	He	75575.01	108752.09	0.7	143.9	60	120	FAIL
72	Ge	NoGas	612217.62	714303.82	1.0	116.67	60	120	
72	Ge	H2	213670.36	207335.60	0.7	97.04	60	120	
72	Ge	He	58427.31	62940.92	1.2	107.73	60	120	
115	In	NoGas	2109467.73	2086030.16	1.3	98.89	60	120	
115	In	H2	1282135.47	1220322.45	0.5	95.18	60	120	
115	In	He	247218.64	228981.08	0.1	92.62	60	120	
159	Tb	NoGas	2633505.45	2976377.94	1.8	113.02	60	120	
209	Bi	NoGas	2664349.82	2681397.33	1.7	100.64	60	120	

Sample Name L34674-03

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:49:35 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	904.817	1.77	ppb	2.0	200	
11	B	6	NoGas	10151.711	19.9	ppb	2.6	20	
27	Al	72	NoGas	17765629.904	34834.57	ppb	3.7	1000	OCAL
51	V	45	He	33847.734	66.37	ppb	0.5	200	
52	Cr	45	He	43106.771	84.52	ppb	0.3	200	
55	Mn	72	NoGas	621847.409	1219.31	ppb	2.9	200	OCAL
56	Fe	45	H2	15689730.614	30764.18	ppb	0.4	1000	OCAL
59	Co	72	NoGas	7531.720	14.77	ppb	3.6	200	
60	Ni	45	He	37636.165	73.8	ppb	0.4	500	
63	Cu	45	He	19917.321	39.05	ppb	0.7	500	
66	Zn	72	NoGas	517387.921	1014.49	ppb	3.7	1000	OCAL
75	As	115	He	6903.638	13.54	ppb	1.8	200	
78	Se	115	H2	2158.447	4.23	ppb	1.7	500	
98	Mo	115	NoGas	7860.577	15.41	ppb	3.8	200	
107	Ag	115	NoGas	280.268	0.55	ppb	2.7	50	
111	Cd	115	NoGas	4289.308	8.41	ppb	3.4	200	
118	Sn	115	NoGas	4396.406	8.62	ppb	3.4	200	
121	Sb	115	NoGas	275.164	0.54	ppb	3.6	25	
125	Te	115	NoGas	60.987	0.12	ppb	12.8	200	
133	Cs	115	NoGas	2610.043	5.12	ppb	2.1	200	
137	Ba	115	NoGas	145606.249	285.5	ppb	3.8	500	
205	Tl	209	NoGas	354.605	0.7	ppb	3.9	200	
208	Pb	209	NoGas	12295.913	24.11	ppb	3.4	500	
232	Th	209	NoGas	7450.559	14.61	ppb	3.7	200	
238	U	209	NoGas	4964.781	9.74	ppb	4.3	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	294528.29	0.7	96.4	60	120	
45	Sc	NoGas	2236890.95	3212449.18	1.5	143.61	60	120	FAIL
45	Sc	H2	575530.9	759909.88	0.4	132.04	60	120	FAIL
45	Sc	He	75575.01	98387.50	1.1	130.19	60	120	FAIL
72	Ge	NoGas	612217.62	677063.72	1.5	110.59	60	120	
72	Ge	H2	213670.36	207102.21	0.9	96.93	60	120	
72	Ge	He	58427.31	62227.70	1.1	106.5	60	120	
115	In	NoGas	2109467.73	2135329.91	1.3	101.23	60	120	
115	In	H2	1282135.47	1240445.78	0.4	96.75	60	120	
115	In	He	247218.64	230624.52	1.0	93.29	60	120	
159	Tb	NoGas	2633505.45	3038361.82	1.8	115.37	60	120	
209	Bi	NoGas	2664349.82	2751459.75	1.1	103.27	60	120	

Sample Name	CCV
File Name	024_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:51:39 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	104.578	1.9	100	104.58	
11	B	6	NoGas	11.316	0.9	10	113.16	CCV FAIL
27	Al	72	NoGas	583.829	1.7	500	116.77	CCV FAIL
51	V	45	He	102.319	0.2	100	102.32	
52	Cr	45	He	101.479	0.3	100	101.48	
55	Mn	72	NoGas	106.270	1.6	100	106.27	
56	Fe	45	H2	566.802	1.0	500	113.36	CCV FAIL
59	Co	72	NoGas	102.258	2.8	100	102.26	
60	Ni	45	He	254.197	0.2	250	101.68	
63	Cu	45	He	263.247	0.3	250	105.3	
66	Zn	72	NoGas	516.858	2.6	500	103.37	
75	As	115	He	104.490	1.3	100	104.49	
78	Se	115	H2	255.122	0.7	250	102.05	
98	Mo	115	NoGas	98.821	2.9	100	98.82	
107	Ag	115	NoGas	24.754	2.5	25	99.02	
111	Cd	115	NoGas	95.474	3.1	100	95.47	
118	Sn	115	NoGas	99.162	3.2	100	99.16	
121	Sb	115	NoGas	11.851	4.2	12.5	94.81	
125	Te	115	NoGas	96.442	2.7	100	96.44	
133	Cs	115	NoGas	98.653	1.8	100	98.65	
137	Ba	115	NoGas	251.832	2.4	250	100.73	
205	Tl	209	NoGas	102.328	1.6	100	102.33	
208	Pb	209	NoGas	252.374	2.2	250	100.95	
232	Th	209	NoGas	100.848	2.6	100	100.85	
238	U	209	NoGas	101.975	2.4	100	101.98	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	305531.94	260966.62	1.5	85.41	60	120	
Sc	45	NoGas	2236890.95	2320125.39	1.2	103.72	60	120	
Sc	45	H2	575530.9	571729.39	0.4	99.34	60	120	
Sc	45	He	75575.01	74074.96	0.5	98.02	60	120	
Ge	72	NoGas	612217.62	611239.70	0.9	99.84	60	120	
Ge	72	H2	213670.36	213198.94	0.7	99.78	60	120	
Ge	72	He	58427.31	58553.30	0.7	100.22	60	120	
In	115	NoGas	2109467.73	2184736.29	0.5	103.57	60	120	
In	115	H2	1282135.47	1325097.86	0.8	103.35	60	120	
In	115	He	247218.64	248598.26	0.2	100.56	60	120	
Tb	159	NoGas	2633505.45	2782802.67	0.8	105.67	60	120	
Bi	209	NoGas	2664349.82	2934279.05	1.0	110.13	60	120	

Sample Name	CCB
File Name	025_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 6:53:36 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.270	14.1	0.15	CCB FAIL
11	B	6	NoGas	0.429	8.4	1.5	
27	Al	72	NoGas	6.866	20.7	3	CCB FAIL
51	V	45	He	-0.393	N/A	0.6	
52	Cr	45	He	0.065	11.5	1.5	
55	Mn	72	NoGas	0.556	17.5	1.5	
59	Co	72	NoGas	0.199	22.4	0.15	CCB FAIL
60	Ni	45	He	0.166	12.9	1.8	
63	Cu	45	He	0.219	9.7	1.5	
66	Zn	72	NoGas	1.236	21.0	6	
75	As	115	He	0.086	75.0	0.6	
78	Se	115	H2	0.282	7.6	0.3	
107	Ag	115	NoGas	0.048	22.2	0.15	
111	Cd	115	NoGas	0.189	23.5	0.3	
118	Sn	115	NoGas	0.214	24.2	0.3	
121	Sb	115	NoGas	0.064	17.8	1.2	
125	Te	115	NoGas	0.199	27.5	3	
133	Cs	115	NoGas	0.192	23.5	0.6	
137	Ba	115	NoGas	0.511	21.7	1.5	
205	Tl	209	NoGas	0.192	23.7	0.3	
208	Pb	209	NoGas	0.551	20.9	0.3	CCB FAIL
232	Th	209	NoGas	0.210	20.8	3	
238	U	209	NoGas	0.199	20.4	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	263238.12	0.6	86.16	60	120	
45	Sc	NoGas	2236890.95	2318164.49	0.9	103.63	60	120	
45	Sc	H2	575530.9	573358.60	1.0	99.62	60	120	
45	Sc	He	75575.01	74711.76	0.5	98.86	60	120	
72	Ge	NoGas	612217.62	610609.32	0.6	99.74	60	120	
72	Ge	H2	213670.36	213190.64	0.9	99.78	60	120	
72	Ge	He	58427.31	58084.70	0.6	99.41	60	120	
115	In	NoGas	2109467.73	2203507.46	1.3	104.46	60	120	
115	In	H2	1282135.47	1291312.14	0.6	100.72	60	120	
115	In	He	247218.64	240143.32	0.1	97.14	60	120	
159	Tb	NoGas	2633505.45	2782032.60	0.7	105.64	60	120	
209	Bi	NoGas	2664349.82	2823694.47	1.3	105.98	60	120	

Sample Name L34674-04

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:55:35 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1008.469	1.98	ppb	4.2	200	
11	B	6	NoGas	6943.732	13.62	ppb	4.4	20	
27	Al	72	NoGas	22319460.505	43763.65	ppb	4.2	1000	OCAL
51	V	45	He	28326.325	55.54	ppb	1.2	200	
52	Cr	45	He	24666.310	48.36	ppb	1.1	200	
55	Mn	72	NoGas	760176.955	1490.54	ppb	4.2	200	OCAL
56	Fe	45	H2	16488517.848	32330.43	ppb	0.4	1000	OCAL
59	Co	72	NoGas	8403.576	16.48	ppb	3.6	200	
60	Ni	45	He	25908.451	50.8	ppb	1.0	500	
63	Cu	45	He	17124.898	33.58	ppb	1.1	500	
66	Zn	72	NoGas	887277.852	1739.76	ppb	3.8	1000	OCAL
75	As	115	He	7646.608	14.99	ppb	2.6	200	
78	Se	115	H2	830.655	1.63	ppb	2.2	500	
98	Mo	115	NoGas	5500.637	10.79	ppb	3.6	200	
107	Ag	115	NoGas	143.249	0.28	ppb	1.7	50	
111	Cd	115	NoGas	2229.381	4.37	ppb	2.1	200	
118	Sn	115	NoGas	4600.669	9.02	ppb	3.7	200	
121	Sb	115	NoGas	219.132	0.43	ppb	3.8	25	
125	Te	115	NoGas	49.591	0.1	ppb	13.1	200	
133	Cs	115	NoGas	3015.847	5.91	ppb	3.0	200	
137	Ba	115	NoGas	167875.876	329.17	ppb	4.4	500	
205	Tl	209	NoGas	316.038	0.62	ppb	3.0	200	
208	Pb	209	NoGas	14341.426	28.12	ppb	4.6	500	
232	Th	209	NoGas	8362.839	16.4	ppb	4.9	200	
238	U	209	NoGas	2761.756	5.42	ppb	3.9	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	305556.01	0.2	100.01	60	120	
45	Sc	NoGas	2236890.95	3312011.95	1.7	148.06	60	120	FAIL
45	Sc	H2	575530.9	789880.54	0.6	137.24	60	120	FAIL
45	Sc	He	75575.01	101785.32	0.7	134.68	60	120	FAIL
72	Ge	NoGas	612217.62	681010.34	0.9	111.24	60	120	
72	Ge	H2	213670.36	208355.54	0.3	97.51	60	120	
72	Ge	He	58427.31	62375.08	0.3	106.76	60	120	
115	In	NoGas	2109467.73	2097971.29	1.0	99.46	60	120	
115	In	H2	1282135.47	1236765.65	0.7	96.46	60	120	
115	In	He	247218.64	230262.75	0.7	93.14	60	120	
159	Tb	NoGas	2633505.45	2990112.52	2.1	113.54	60	120	
209	Bi	NoGas	2664349.82	2740975.52	0.7	102.88	60	120	

Sample Name L34674-05

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:57:40 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1109.326	2.2	ppb	1.5	200	
11	B	6	NoGas	14064.231	27.85	ppb	3.4	20	OCAL
27	Al	72	NoGas	15158934.071	30017.69	ppb	3.5	1000	OCAL
51	V	45	He	102491.481	202.95	ppb	1.1	200	OCAL
52	Cr	45	He	176858.283	350.21	ppb	0.8	200	OCAL
55	Mn	72	NoGas	735039.343	1455.52	ppb	4.0	200	OCAL
56	Fe	45	H2	16233900.189	32146.34	ppb	0.2	1000	OCAL
59	Co	72	NoGas	9171.780	18.16	ppb	4.0	200	
60	Ni	45	He	144820.273	286.77	ppb	1.0	500	
63	Cu	45	He	40977.531	81.14	ppb	1.0	500	
66	Zn	72	NoGas	841495.247	1666.33	ppb	4.2	1000	OCAL
75	As	115	He	24610.936	48.74	ppb	0.9	200	
78	Se	115	H2	29226.661	57.88	ppb	0.8	500	
98	Mo	115	NoGas	18691.597	37.01	ppb	6.1	200	
107	Ag	115	NoGas	2320.836	4.6	ppb	3.5	50	
111	Cd	115	NoGas	12126.476	24.01	ppb	4.3	200	
118	Sn	115	NoGas	4793.686	9.49	ppb	4.4	200	
121	Sb	115	NoGas	2824.403	5.59	ppb	4.1	25	
125	Te	115	NoGas	156.588	0.31	ppb	3.0	200	
133	Cs	115	NoGas	2285.009	4.53	ppb	3.0	200	
137	Ba	115	NoGas	120357.813	238.33	ppb	4.2	500	
205	Tl	209	NoGas	744.712	1.48	ppb	3.3	200	
208	Pb	209	NoGas	12876.610	25.5	ppb	3.9	500	
232	Th	209	NoGas	7583.900	15.02	ppb	4.6	200	
238	U	209	NoGas	16787.684	33.24	ppb	4.9	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	287467.64	0.0	94.09	60	120	
45	Sc	NoGas	2236890.95	3499285.97	1.5	156.44	60	120	FAIL
45	Sc	H2	575530.9	819828.51	0.9	142.45	60	120	FAIL
45	Sc	He	75575.01	105256.52	0.4	139.27	60	120	FAIL
72	Ge	NoGas	612217.62	651247.01	0.8	106.38	60	120	
72	Ge	H2	213670.36	195714.43	0.9	91.6	60	120	
72	Ge	He	58427.31	62155.25	0.2	106.38	60	120	
115	In	NoGas	2109467.73	2098509.62	1.9	99.48	60	120	
115	In	H2	1282135.47	1199978.74	0.3	93.59	60	120	
115	In	He	247218.64	224315.97	0.9	90.74	60	120	
159	Tb	NoGas	2633505.45	3250945.98	1.4	123.45	60	120	FAIL
209	Bi	NoGas	2664349.82	2731349.48	0.8	102.51	60	120	

Sample Name L34674-06

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 6:59:45 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	549.199	1.09	ppb	4.0	200	
11	B	6	NoGas	18782.422	37.19	ppb	3.4	20	OCAL
27	Al	72	NoGas	8788765.904	17403.5	ppb	3.2	1000	OCAL
51	V	45	He	45102.051	89.31	ppb	1.0	200	
52	Cr	45	He	123416.364	244.39	ppb	0.9	200	OCAL
55	Mn	72	NoGas	326163.423	645.87	ppb	2.6	200	OCAL
56	Fe	45	H2	10005204.300	19812.29	ppb	0.7	1000	OCAL
59	Co	72	NoGas	3565.343	7.06	ppb	2.6	200	
60	Ni	45	He	67766.275	134.19	ppb	0.9	500	
63	Cu	45	He	18405.598	36.45	ppb	1.3	500	
66	Zn	72	NoGas	337338.312	668	ppb	2.4	1000	
75	As	115	He	5866.924	11.62	ppb	2.5	200	
78	Se	115	H2	3289.894	6.52	ppb	1.4	500	
98	Mo	115	NoGas	4290.886	8.5	ppb	3.4	200	
107	Ag	115	NoGas	182.202	0.36	ppb	1.3	50	
111	Cd	115	NoGas	4606.534	9.12	ppb	2.2	200	
118	Sn	115	NoGas	4048.544	8.02	ppb	3.0	200	
121	Sb	115	NoGas	397.664	0.79	ppb	3.1	25	
125	Te	115	NoGas	58.692	0.12	ppb	22.8	200	
133	Cs	115	NoGas	1339.045	2.65	ppb	2.5	200	
137	Ba	115	NoGas	48317.552	95.68	ppb	2.9	500	
205	Tl	209	NoGas	387.726	0.77	ppb	4.0	200	
208	Pb	209	NoGas	5454.187	10.8	ppb	2.8	500	
232	Th	209	NoGas	3756.555	7.44	ppb	3.4	200	
238	U	209	NoGas	15220.670	30.14	ppb	3.7	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	260876.72	0.3	85.38	60	120	
45	Sc	NoGas	2236890.95	2708436.42	1.1	121.08	60	120	FAIL
45	Sc	H2	575530.9	635636.87	0.6	110.44	60	120	
45	Sc	He	75575.01	82140.54	1.8	108.69	60	120	
72	Ge	NoGas	612217.62	618306.54	1.0	100.99	60	120	
72	Ge	H2	213670.36	196202.16	0.5	91.82	60	120	
72	Ge	He	58427.31	62389.46	0.9	106.78	60	120	
115	In	NoGas	2109467.73	2122668.51	0.5	100.63	60	120	
115	In	H2	1282135.47	1223450.23	0.8	95.42	60	120	
115	In	He	247218.64	227459.13	0.8	92.01	60	120	
159	Tb	NoGas	2633505.45	3308934.31	1.2	125.65	60	120	FAIL
209	Bi	NoGas	2664349.82	2796917.25	0.8	104.98	60	120	

Sample Name L34674-07

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:01:49 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	932.789	1.83	ppb	3.7	200	
11	B	6	NoGas	14547.634	28.52	ppb	3.0	20	OCAL
27	Al	72	NoGas	17790322.627	34882.99	ppb	3.7	1000	OCAL
51	V	45	He	34403.743	67.46	ppb	1.3	200	
52	Cr	45	He	24988.804	49	ppb	1.7	200	
55	Mn	72	NoGas	3489161.146	6841.49	ppb	3.5	200	OCAL
56	Fe	45	H2	21192782.160	41554.48	ppb	0.7	1000	OCAL
59	Co	72	NoGas	13855.207	27.17	ppb	3.3	200	
60	Ni	45	He	27148.818	53.23	ppb	0.8	500	
63	Cu	45	He	21396.282	41.95	ppb	1.1	500	
66	Zn	72	NoGas	273502.837	536.28	ppb	3.2	1000	
75	As	115	He	6733.234	13.2	ppb	2.4	200	
78	Se	115	H2	731.171	1.43	ppb	2.5	500	
98	Mo	115	NoGas	1893.539	3.71	ppb	2.8	200	
107	Ag	115	NoGas	182.678	0.36	ppb	3.6	50	
111	Cd	115	NoGas	3129.023	6.14	ppb	3.2	200	
118	Sn	115	NoGas	4065.160	7.97	ppb	2.9	200	
121	Sb	115	NoGas	207.484	0.41	ppb	0.6	25	
125	Te	115	NoGas	54.066	0.11	ppb	15.7	200	
133	Cs	115	NoGas	2745.207	5.38	ppb	2.1	200	
137	Ba	115	NoGas	223145.884	437.54	ppb	3.1	500	
205	Tl	209	NoGas	251.739	0.49	ppb	2.8	200	
208	Pb	209	NoGas	19171.353	37.59	ppb	2.7	500	
232	Th	209	NoGas	6388.140	12.53	ppb	3.1	200	
238	U	209	NoGas	3538.675	6.94	ppb	3.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	305225.87	0.6	99.9	60	120	
45	Sc	NoGas	2236890.95	3224144.80	2.3	144.14	60	120	FAIL
45	Sc	H2	575530.9	753694.61	0.5	130.96	60	120	FAIL
45	Sc	He	75575.01	98029.55	1.1	129.71	60	120	FAIL
72	Ge	NoGas	612217.62	660083.38	1.1	107.82	60	120	
72	Ge	H2	213670.36	196720.39	0.8	92.07	60	120	
72	Ge	He	58427.31	59298.56	0.1	101.49	60	120	
115	In	NoGas	2109467.73	2093935.51	1.2	99.26	60	120	
115	In	H2	1282135.47	1195578.70	0.7	93.25	60	120	
115	In	He	247218.64	222764.37	0.9	90.11	60	120	
159	Tb	NoGas	2633505.45	3058673.28	1.8	116.14	60	120	
209	Bi	NoGas	2664349.82	2774685.86	0.3	104.14	60	120	

Sample Name L34674-07MS

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:03:55 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	22075.797	43.29	ppb	3.0	200	
11	B	6	NoGas	18508.935	36.29	ppb	2.1	20	OCAL
27	Al	72	NoGas	16891332.979	33120.26	ppb	3.4	1000	OCAL
51	V	45	He	51809.155	101.59	ppb	0.7	200	
52	Cr	45	He	42522.051	83.38	ppb	0.6	200	
55	Mn	72	NoGas	3019421.382	5920.43	ppb	2.9	200	OCAL
56	Fe	45	H2	21771591.214	42689.4	ppb	0.3	1000	OCAL
59	Co	72	NoGas	33094.537	64.89	ppb	2.9	200	
60	Ni	45	He	44993.009	88.22	ppb	0.8	500	
63	Cu	45	He	38266.360	75.03	ppb	0.4	500	
66	Zn	72	NoGas	301422.608	591.02	ppb	2.8	1000	
75	As	115	He	32736.926	64.19	ppb	0.9	200	
78	Se	115	H2	14455.746	28.34	ppb	1.2	500	
98	Mo	115	NoGas	25165.976	49.34	ppb	4.1	200	
107	Ag	115	NoGas	4734.026	9.28	ppb	2.5	50	
111	Cd	115	NoGas	26387.537	51.74	ppb	3.2	200	
118	Sn	115	NoGas	21439.843	42.04	ppb	3.7	200	
121	Sb	115	NoGas	958.405	1.88	ppb	3.9	25	
125	Te	115	NoGas	11276.090	22.11	ppb	4.7	200	
133	Cs	115	NoGas	13634.300	26.73	ppb	2.7	200	
137	Ba	115	NoGas	219222.656	429.85	ppb	3.1	500	
205	Tl	209	NoGas	26532.590	52.02	ppb	3.8	200	
208	Pb	209	NoGas	43751.158	85.79	ppb	3.1	500	
232	Th	209	NoGas	16612.829	32.57	ppb	3.5	200	
238	U	209	NoGas	16677.408	32.7	ppb	4.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	302817.51	0.9	99.11	60	120	
45	Sc	NoGas	2236890.95	3211580.01	1.7	143.57	60	120	FAIL
45	Sc	H2	575530.9	744932.82	0.2	129.43	60	120	FAIL
45	Sc	He	75575.01	95972.60	0.2	126.99	60	120	FAIL
72	Ge	NoGas	612217.62	672208.32	1.5	109.8	60	120	
72	Ge	H2	213670.36	194919.31	0.5	91.22	60	120	
72	Ge	He	58427.31	58125.96	0.5	99.48	60	120	
115	In	NoGas	2109467.73	2069909.37	1.1	98.12	60	120	
115	In	H2	1282135.47	1193266.48	0.5	93.07	60	120	
115	In	He	247218.64	222153.47	0.9	89.86	60	120	
159	Tb	NoGas	2633505.45	2991410.02	2.4	113.59	60	120	
209	Bi	NoGas	2664349.82	2736719.89	0.8	102.72	60	120	

Sample Name L34674-07MSD

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:06:00 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	22310.086	43.74	ppb	3.4	200	
11	B	6	NoGas	18885.556	37.03	ppb	3.1	20	OCAL
27	Al	72	NoGas	17789054.601	34880.5	ppb	4.0	1000	OCAL
51	V	45	He	51895.465	101.76	ppb	0.4	200	
52	Cr	45	He	43382.396	85.06	ppb	0.9	200	
55	Mn	72	NoGas	3365634.065	6599.28	ppb	3.7	200	OCAL
56	Fe	45	H2	20535610.002	40265.9	ppb	0.5	1000	OCAL
59	Co	72	NoGas	34558.004	67.76	ppb	4.0	200	
60	Ni	45	He	44747.942	87.74	ppb	0.4	500	
63	Cu	45	He	37736.675	73.99	ppb	0.5	500	
66	Zn	72	NoGas	322978.500	633.29	ppb	3.5	1000	
75	As	115	He	32622.417	63.97	ppb	0.5	200	
78	Se	115	H2	13474.608	26.42	ppb	0.7	500	
98	Mo	115	NoGas	26310.882	51.59	ppb	3.5	200	
107	Ag	115	NoGas	4839.229	9.49	ppb	2.8	50	
111	Cd	115	NoGas	27059.963	53.06	ppb	3.4	200	
118	Sn	115	NoGas	21866.669	42.88	ppb	3.7	200	
121	Sb	115	NoGas	957.678	1.88	ppb	3.8	25	
125	Te	115	NoGas	11470.877	22.49	ppb	2.9	200	
133	Cs	115	NoGas	14012.546	27.48	ppb	2.7	200	
137	Ba	115	NoGas	250463.008	491.1	ppb	3.6	500	
205	Tl	209	NoGas	26931.817	52.81	ppb	3.9	200	
208	Pb	209	NoGas	45237.601	88.7	ppb	3.7	500	
232	Th	209	NoGas	16959.035	33.25	ppb	4.2	200	
238	U	209	NoGas	17035.121	33.4	ppb	4.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	303369.82	1.5	99.29	60	120	
45	Sc	NoGas	2236890.95	3242072.09	2.3	144.94	60	120	FAIL
45	Sc	H2	575530.9	750448.69	0.6	130.39	60	120	FAIL
45	Sc	He	75575.01	96777.68	1.1	128.06	60	120	FAIL
72	Ge	NoGas	612217.62	663363.13	1.8	108.35	60	120	
72	Ge	H2	213670.36	194259.94	0.6	90.92	60	120	
72	Ge	He	58427.31	58539.97	0.8	100.19	60	120	
115	In	NoGas	2109467.73	2067535.82	1.3	98.01	60	120	
115	In	H2	1282135.47	1194553.77	0.4	93.17	60	120	
115	In	He	247218.64	221391.18	0.9	89.55	60	120	
159	Tb	NoGas	2633505.45	3032626.55	2.2	115.16	60	120	
209	Bi	NoGas	2664349.82	2757199.34	1.4	103.48	60	120	

Sample Name L34674-08

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:08:05 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1040.875	2.06	ppb	1.1	200	
11	B	6	NoGas	13971.187	27.67	ppb	3.3	20	OCAL
27	Al	72	NoGas	18465638.551	36565.62	ppb	3.8	1000	OCAL
51	V	45	He	33766.160	66.86	ppb	0.8	200	
52	Cr	45	He	29708.435	58.83	ppb	0.2	200	
55	Mn	72	NoGas	2623820.046	5195.68	ppb	3.9	200	OCAL
56	Fe	45	H2	20918557.959	41422.89	ppb	0.6	1000	OCAL
59	Co	72	NoGas	11884.681	23.53	ppb	3.6	200	
60	Ni	45	He	36645.118	72.56	ppb	0.6	500	
63	Cu	45	He	22923.409	45.39	ppb	0.7	500	
66	Zn	72	NoGas	237833.311	470.96	ppb	4.3	1000	
75	As	115	He	11070.519	21.92	ppb	0.9	200	
78	Se	115	H2	1584.636	3.14	ppb	1.9	500	
98	Mo	115	NoGas	1956.879	3.88	ppb	2.4	200	
107	Ag	115	NoGas	178.700	0.35	ppb	1.5	50	
111	Cd	115	NoGas	3751.864	7.43	ppb	4.2	200	
118	Sn	115	NoGas	3899.656	7.72	ppb	2.9	200	
121	Sb	115	NoGas	324.974	0.64	ppb	2.9	25	
125	Te	115	NoGas	86.174	0.17	ppb	13.3	200	
133	Cs	115	NoGas	2796.876	5.54	ppb	2.2	200	
137	Ba	115	NoGas	194851.009	385.84	ppb	3.6	500	
205	Tl	209	NoGas	335.773	0.66	ppb	7.2	200	
208	Pb	209	NoGas	17020.817	33.7	ppb	3.7	500	
232	Th	209	NoGas	6213.255	12.3	ppb	4.2	200	
238	U	209	NoGas	3996.375	7.91	ppb	3.9	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	306450.16	0.5	100.3	60	120	
45	Sc	NoGas	2236890.95	3196478.34	2.1	142.9	60	120	FAIL
45	Sc	H2	575530.9	746904.33	0.3	129.78	60	120	FAIL
45	Sc	He	75575.01	95497.22	1.2	126.36	60	120	FAIL
72	Ge	NoGas	612217.62	655824.89	1.4	107.12	60	120	
72	Ge	H2	213670.36	192653.31	0.8	90.16	60	120	
72	Ge	He	58427.31	58464.07	0.6	100.06	60	120	
115	In	NoGas	2109467.73	2095961.62	0.9	99.36	60	120	
115	In	H2	1282135.47	1187023.36	0.2	92.58	60	120	
115	In	He	247218.64	218595.90	0.8	88.42	60	120	
159	Tb	NoGas	2633505.45	3021993.08	1.4	114.75	60	120	
209	Bi	NoGas	2664349.82	2779077.46	1.0	104.31	60	120	

Sample Name L34674-09

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:10:11 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	560.031	1.11	ppb	6.1	200	
11	B	6	NoGas	12412.356	24.58	ppb	3.4	20	OCAL
27	Al	72	NoGas	5711662.674	11310.22	ppb	3.6	1000	OCAL
51	V	45	He	21852.908	43.27	ppb	0.6	200	
52	Cr	45	He	92388.584	182.95	ppb	0.9	200	
55	Mn	72	NoGas	202384.914	400.76	ppb	1.8	200	OCAL
56	Fe	45	H2	14918876.406	29542.33	ppb	0.2	1000	OCAL
59	Co	72	NoGas	5670.373	11.23	ppb	3.9	200	
60	Ni	45	He	89324.120	176.88	ppb	1.1	500	
63	Cu	45	He	32344.605	64.05	ppb	1.0	500	
66	Zn	72	NoGas	369417.206	731.52	ppb	3.9	1000	
75	As	115	He	10325.978	20.45	ppb	2.2	200	
78	Se	115	H2	3567.892	7.06	ppb	0.6	500	
98	Mo	115	NoGas	3132.426	6.2	ppb	3.7	200	
107	Ag	115	NoGas	62.054	0.12	ppb	2.7	50	
111	Cd	115	NoGas	1380.427	2.73	ppb	2.2	200	
118	Sn	115	NoGas	4061.509	8.04	ppb	3.0	200	
121	Sb	115	NoGas	246.756	0.49	ppb	4.3	25	
125	Te	115	NoGas	26.396	0.05	ppb	14.7	200	
133	Cs	115	NoGas	1227.428	2.43	ppb	2.3	200	
137	Ba	115	NoGas	42531.972	84.22	ppb	2.3	500	
205	Tl	209	NoGas	361.122	0.72	ppb	2.1	200	
208	Pb	209	NoGas	4369.409	8.65	ppb	2.5	500	
232	Th	209	NoGas	4889.987	9.68	ppb	3.4	200	
238	U	209	NoGas	4254.210	8.42	ppb	3.4	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	252962.13	0.5	82.79	60	120	
45	Sc	NoGas	2236890.95	2919411.76	1.7	130.51	60	120	FAIL
45	Sc	H2	575530.9	680138.43	0.6	118.18	60	120	
45	Sc	He	75575.01	88320.88	1.0	116.87	60	120	
72	Ge	NoGas	612217.62	652269.16	1.6	106.54	60	120	
72	Ge	H2	213670.36	198753.74	0.4	93.02	60	120	
72	Ge	He	58427.31	60389.88	1.1	103.36	60	120	
115	In	NoGas	2109467.73	2151762.99	0.9	102.01	60	120	
115	In	H2	1282135.47	1232216.72	0.3	96.11	60	120	
115	In	He	247218.64	226589.75	0.8	91.66	60	120	
159	Tb	NoGas	2633505.45	3123796.26	1.4	118.62	60	120	
209	Bi	NoGas	2664349.82	2833593.08	0.2	106.35	60	120	

Sample Name L34674-10

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:12:27 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	252.020	0.5	ppb	9.7	200	
11	B	6	NoGas	6656.022	13.18	ppb	7.8	20	
27	Al	72	NoGas	3002743.259	5946.03	ppb	8.9	1000	OCAL
51	V	45	He	12229.829	24.22	ppb	1.8	200	
52	Cr	45	He	61752.463	122.28	ppb	2.1	200	
55	Mn	72	NoGas	62409.307	123.58	ppb	8.6	200	
56	Fe	45	H2	7671851.424	15191.78	ppb	1.2	1000	OCAL
59	Co	72	NoGas	2484.023	4.92	ppb	8.8	200	
60	Ni	45	He	46460.557	92	ppb	2.6	500	
63	Cu	45	He	20009.827	39.62	ppb	1.9	500	
66	Zn	72	NoGas	223548.303	442.67	ppb	8.7	1000	
75	As	115	He	4818.656	9.54	ppb	3.2	200	
78	Se	115	H2	4499.057	8.91	ppb	2.8	500	
98	Mo	115	NoGas	1214.371	2.4	ppb	8.7	200	
107	Ag	115	NoGas	33.531	0.07	ppb	10.1	50	
111	Cd	115	NoGas	735.376	1.46	ppb	7.8	200	
118	Sn	115	NoGas	3167.614	6.27	ppb	8.5	200	
121	Sb	115	NoGas	177.733	0.35	ppb	7.5	25	
125	Te	115	NoGas	12.866	0.02	ppb	11.5	200	
133	Cs	115	NoGas	632.310	1.25	ppb	8.6	200	
137	Ba	115	NoGas	15775.386	31.24	ppb	9.8	500	
205	Tl	209	NoGas	131.641	0.26	ppb	8.3	200	
208	Pb	209	NoGas	2425.453	4.8	ppb	9.5	500	
232	Th	209	NoGas	2499.773	4.95	ppb	9.2	200	
238	U	209	NoGas	3227.751	6.39	ppb	9.4	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	268160.35	11.7	87.77	60	120	
45	Sc	NoGas	2236890.95	2732109.62	8.1	122.14	60	120	FAIL
45	Sc	H2	575530.9	606457.58	0.8	105.37	60	120	
45	Sc	He	75575.01	77649.17	0.6	102.74	60	120	
72	Ge	NoGas	612217.62	666448.48	10.6	108.86	60	120	
72	Ge	H2	213670.36	199729.97	0.8	93.48	60	120	
72	Ge	He	58427.31	58056.83	0.2	99.37	60	120	
115	In	NoGas	2109467.73	2307255.99	10.7	109.38	60	120	
115	In	H2	1282135.47	1236721.17	0.3	96.46	60	120	
115	In	He	247218.64	229100.07	0.8	92.67	60	120	
159	Tb	NoGas	2633505.45	3164620.85	8.7	120.17	60	120	FAIL
209	Bi	NoGas	2664349.82	2995386.90	11.2	112.42	60	120	

Sample Name L34674-11

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:14:37 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	1067.274	2.09	ppb	1.3	200	
11	B	6	NoGas	11922.917	23.38	ppb	3.9	20	OCAL
27	Al	72	NoGas	21689433.675	42528.3	ppb	4.3	1000	OCAL
51	V	45	He	22705.770	44.52	ppb	0.6	200	
52	Cr	45	He	18747.903	36.76	ppb	1.2	200	
55	Mn	72	NoGas	3402251.887	6671.08	ppb	3.7	200	OCAL
56	Fe	45	H2	23561389.848	46198.8	ppb	0.4	1000	OCAL
59	Co	72	NoGas	15346.344	30.09	ppb	3.9	200	
60	Ni	45	He	21247.817	41.66	ppb	1.2	500	
63	Cu	45	He	17347.735	34.02	ppb	1.1	500	
66	Zn	72	NoGas	91053.478	178.54	ppb	3.0	1000	
75	As	115	He	6513.703	12.77	ppb	0.7	200	
78	Se	115	H2	192.942	0.38	ppb	4.3	500	
98	Mo	115	NoGas	610.808	1.2	ppb	2.4	200	
107	Ag	115	NoGas	58.244	0.11	ppb	3.4	50	
111	Cd	115	NoGas	638.080	1.25	ppb	2.1	200	
118	Sn	115	NoGas	4010.190	7.86	ppb	3.1	200	
121	Sb	115	NoGas	157.354	0.31	ppb	4.8	25	
125	Te	115	NoGas	46.304	0.09	ppb	6.7	200	
133	Cs	115	NoGas	3834.579	7.52	ppb	2.3	200	
137	Ba	115	NoGas	240046.499	470.68	ppb	3.5	500	
205	Tl	209	NoGas	178.854	0.35	ppb	2.2	200	
208	Pb	209	NoGas	38416.275	75.33	ppb	3.1	500	
232	Th	209	NoGas	6581.985	12.91	ppb	3.4	200	
238	U	209	NoGas	785.211	1.54	ppb	3.0	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	324714.65	1.2	106.28	60	120	
45	Sc	NoGas	2236890.95	3541127.71	2.7	158.31	60	120	FAIL
45	Sc	H2	575530.9	834221.77	0.2	144.95	60	120	FAIL
45	Sc	He	75575.01	106781.98	0.1	141.29	60	120	FAIL
72	Ge	NoGas	612217.62	687176.03	2.0	112.24	60	120	
72	Ge	H2	213670.36	197523.07	0.5	92.44	60	120	
72	Ge	He	58427.31	59220.52	1.1	101.36	60	120	
115	In	NoGas	2109467.73	2066588.53	1.9	97.97	60	120	
115	In	H2	1282135.47	1195616.27	0.1	93.25	60	120	
115	In	He	247218.64	219961.14	1.3	88.97	60	120	
159	Tb	NoGas	2633505.45	2967963.91	1.9	112.7	60	120	
209	Bi	NoGas	2664349.82	2702174.89	1.1	101.42	60	120	

Sample Name	CCV
File Name	036_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 7:16:41 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	104.962	2.9	100	104.96	
11	B	6	NoGas	11.460	2.6	10	114.6	CCV FAIL
27	Al	72	NoGas	594.756	1.5	500	118.95	CCV FAIL
51	V	45	He	99.991	2.4	100	99.99	
52	Cr	45	He	99.288	2.5	100	99.29	
55	Mn	72	NoGas	118.244	0.6	100	118.24	CCV FAIL
56	Fe	45	H2	590.175	2.0	500	118.04	CCV FAIL
59	Co	72	NoGas	101.610	3.0	100	101.61	
60	Ni	45	He	249.024	1.8	250	99.61	
63	Cu	45	He	257.983	2.1	250	103.19	
66	Zn	72	NoGas	511.535	2.5	500	102.31	
75	As	115	He	101.059	1.5	100	101.06	
78	Se	115	H2	250.572	0.4	250	100.23	
98	Mo	115	NoGas	98.212	2.7	100	98.21	
107	Ag	115	NoGas	24.423	4.2	25	97.69	
111	Cd	115	NoGas	94.710	2.4	100	94.71	
118	Sn	115	NoGas	99.615	2.7	100	99.62	
121	Sb	115	NoGas	11.793	3.6	12.5	94.34	
125	Te	115	NoGas	96.281	2.5	100	96.28	
133	Cs	115	NoGas	99.255	1.3	100	99.26	
137	Ba	115	NoGas	253.145	2.1	250	101.26	
205	Tl	209	NoGas	101.591	1.5	100	101.59	
208	Pb	209	NoGas	251.707	2.3	250	100.68	
232	Th	209	NoGas	100.278	2.8	100	100.28	
238	U	209	NoGas	101.037	2.4	100	101.04	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	305531.94	247522.64	0.5	81.01	60	120	
Sc	45	NoGas	2236890.95	2269403.24	0.6	101.45	60	120	
Sc	45	H2	575530.9	551365.57	0.4	95.8	60	120	
Sc	45	He	75575.01	72332.99	0.8	95.71	60	120	
Ge	72	NoGas	612217.62	600879.37	0.6	98.15	60	120	
Ge	72	H2	213670.36	206406.97	0.4	96.6	60	120	
Ge	72	He	58427.31	56580.96	1.3	96.84	60	120	
In	115	NoGas	2109467.73	2165655.15	0.3	102.66	60	120	
In	115	H2	1282135.47	1303202.83	0.6	101.64	60	120	
In	115	He	247218.64	242137.73	1.2	97.94	60	120	
Tb	159	NoGas	2633505.45	2787965.72	0.4	105.87	60	120	
Bi	209	NoGas	2664349.82	2944450.86	0.7	110.51	60	120	

Sample Name	CCB
File Name	037_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 7:19:13 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.153	26.8	0.15	CCB FAIL
11	B	6	NoGas	0.149	168.9	1.5	
27	Al	72	NoGas	3.433	23.2	3	CCB FAIL
51	V	45	He	-0.323	N/A	0.6	
52	Cr	45	He	0.118	11.8	1.5	
55	Mn	72	NoGas	0.475	43.0	1.5	
59	Co	72	NoGas	0.106	24.0	0.15	
60	Ni	45	He	0.278	7.9	1.8	
63	Cu	45	He	0.378	10.3	1.5	
66	Zn	72	NoGas	0.475	43.6	6	
75	As	115	He	0.138	62.1	0.6	
78	Se	115	H2	0.326	4.2	0.3	CCB FAIL
107	Ag	115	NoGas	0.027	22.5	0.15	
111	Cd	115	NoGas	0.101	22.8	0.3	
118	Sn	115	NoGas	0.091	45.8	0.3	
121	Sb	115	NoGas	0.038	16.2	1.2	
125	Te	115	NoGas	0.110	24.1	3	
133	Cs	115	NoGas	0.104	23.8	0.6	
137	Ba	115	NoGas	0.274	22.9	1.5	
205	Tl	209	NoGas	0.110	25.9	0.3	
208	Pb	209	NoGas	0.303	23.2	0.3	CCB FAIL
232	Th	209	NoGas	0.112	22.6	3	
238	U	209	NoGas	0.107	22.5	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	379842.08	30.4	124.32	60	120	FAIL
45	Sc	NoGas	2236890.95	3330794.10	25.4	148.9	60	120	FAIL
45	Sc	H2	575530.9	566593.87	0.7	98.45	60	120	
45	Sc	He	75575.01	72394.40	0.9	95.79	60	120	
72	Ge	NoGas	612217.62	881526.60	28.7	143.99	60	120	FAIL
72	Ge	H2	213670.36	210653.80	0.9	98.59	60	120	
72	Ge	He	58427.31	56475.02	0.7	96.66	60	120	
115	In	NoGas	2109467.73	3198176.84	25.0	151.61	60	120	FAIL
115	In	H2	1282135.47	1298610.40	0.6	101.28	60	120	
115	In	He	247218.64	236986.21	0.7	95.86	60	120	
159	Tb	NoGas	2633505.45	4012291.58	25.5	152.36	60	120	FAIL
209	Bi	NoGas	2664349.82	4114898.03	26.0	154.44	60	120	FAIL

Sample Name L34674-12

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:21:47 PM

Sample Type Sample

Total Dilution 510.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	563.177	1.1	ppb	79.7	200	
11	B	6	NoGas	6257.904	12.27	ppb	76.4	20	
27	Al	72	NoGas	5028372.543	9859.55	ppb	81.6	1000	OCAL
51	V	45	He	32452.681	63.63	ppb	2.4	200	
52	Cr	45	He	14238.552	27.92	ppb	2.4	200	
55	Mn	72	NoGas	1487751.882	2917.16	ppb	82.3	200	OCAL
56	Fe	45	H2	23061609.818	45218.84	ppb	0.2	1000	OCAL
59	Co	72	NoGas	6699.771	13.14	ppb	82.5	200	
60	Ni	45	He	33702.090	66.08	ppb	2.1	500	
63	Cu	45	He	28946.629	56.76	ppb	2.7	500	
66	Zn	72	NoGas	66477.269	130.35	ppb	82.3	1000	
75	As	115	He	12901.165	25.3	ppb	2.4	200	
78	Se	115	H2	480.918	0.94	ppb	2.2	500	
98	Mo	115	NoGas	879.054	1.72	ppb	81.8	200	
107	Ag	115	NoGas	92.090	0.18	ppb	83.0	50	
111	Cd	115	NoGas	2430.853	4.77	ppb	82.7	200	
118	Sn	115	NoGas	1563.150	3.06	ppb	78.3	200	
121	Sb	115	NoGas	156.790	0.31	ppb	73.7	25	
125	Te	115	NoGas	19.734	0.04	ppb	69.7	200	
133	Cs	115	NoGas	1035.820	2.03	ppb	84.3	200	
137	Ba	115	NoGas	104450.558	204.8	ppb	82.1	500	
205	Tl	209	NoGas	115.070	0.23	ppb	80.3	200	
208	Pb	209	NoGas	12827.865	25.15	ppb	82.5	500	
232	Th	209	NoGas	2699.437	5.29	ppb	81.0	200	
238	U	209	NoGas	1243.218	2.44	ppb	81.3	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	352818.55	29.4	115.48	60	120	
45	Sc	NoGas	2236890.95	3835167.14	32.4	171.45	60	120	FAIL
45	Sc	H2	575530.9	822100.63	0.7	142.84	60	120	FAIL
45	Sc	He	75575.01	102807.91	1.0	136.03	60	120	FAIL
72	Ge	NoGas	612217.62	857703.19	31.0	140.1	60	120	FAIL
72	Ge	H2	213670.36	204639.21	0.9	95.77	60	120	
72	Ge	He	58427.31	59292.01	0.8	101.48	60	120	
115	In	NoGas	2109467.73	2842951.12	26.4	134.77	60	120	FAIL
115	In	H2	1282135.47	1235629.12	0.7	96.37	60	120	
115	In	He	247218.64	226243.33	0.8	91.52	60	120	
159	Tb	NoGas	2633505.45	3798338.88	27.0	144.23	60	120	FAIL
209	Bi	NoGas	2664349.82	3689526.38	27.4	138.48	60	120	FAIL

Sample Name L34674-13

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:23:57 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	903.265	1.79	ppb	3.4	200	
11	B	6	NoGas	15514.961	30.72	ppb	3.3	20	OCAL
27	Al	72	NoGas	15706616.137	31102.21	ppb	3.2	1000	OCAL
51	V	45	He	19703.507	39.02	ppb	1.1	200	
52	Cr	45	He	19823.666	39.26	ppb	0.9	200	
55	Mn	72	NoGas	2055369.607	4070.04	ppb	3.0	200	OCAL
56	Fe	45	H2	19263277.037	38145.1	ppb	0.6	1000	OCAL
59	Co	72	NoGas	12019.450	23.8	ppb	3.0	200	
60	Ni	45	He	20779.033	41.15	ppb	1.1	500	
63	Cu	45	He	23311.846	46.16	ppb	1.1	500	
66	Zn	72	NoGas	118710.091	235.07	ppb	2.8	1000	
75	As	115	He	6380.968	12.64	ppb	1.8	200	
78	Se	115	H2	601.935	1.19	ppb	3.8	500	
98	Mo	115	NoGas	1053.076	2.08	ppb	2.8	200	
107	Ag	115	NoGas	224.886	0.44	ppb	1.7	50	
111	Cd	115	NoGas	1327.133	2.63	ppb	0.7	200	
118	Sn	115	NoGas	3799.964	7.52	ppb	3.3	200	
121	Sb	115	NoGas	174.882	0.35	ppb	2.2	25	
125	Te	115	NoGas	39.072	0.08	ppb	25.5	200	
133	Cs	115	NoGas	2801.788	5.55	ppb	2.1	200	
137	Ba	115	NoGas	54427.651	107.78	ppb	2.8	500	
205	Tl	209	NoGas	204.100	0.4	ppb	2.5	200	
208	Pb	209	NoGas	24638.218	48.79	ppb	3.0	500	
232	Th	209	NoGas	4653.269	9.21	ppb	3.8	200	
238	U	209	NoGas	1692.239	3.35	ppb	3.9	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	308488.14	1.2	100.97	60	120	
45	Sc	NoGas	2236890.95	3123173.21	1.8	139.62	60	120	FAIL
45	Sc	H2	575530.9	726339.28	0.7	126.2	60	120	FAIL
45	Sc	He	75575.01	92446.48	1.9	122.32	60	120	FAIL
72	Ge	NoGas	612217.62	617151.12	0.4	100.81	60	120	
72	Ge	H2	213670.36	184921.02	1.0	86.55	60	120	
72	Ge	He	58427.31	55080.71	1.7	94.27	60	120	
115	In	NoGas	2109467.73	2003288.63	1.2	94.97	60	120	
115	In	H2	1282135.47	1145949.99	0.8	89.38	60	120	
115	In	He	247218.64	212940.01	1.4	86.13	60	120	
159	Tb	NoGas	2633505.45	2876554.54	1.9	109.23	60	120	
209	Bi	NoGas	2664349.82	2640219.62	1.6	99.09	60	120	

Sample Name L34674-14

Data Path Name C:\Agilent\ICPMH\1\DATA\wg415986_7.b

Acq Time 1/12/2017 7:26:03 PM

Sample Type Sample

Total Dilution 505.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Corrected Conc.	Raw Concentration	Units	CPS RSD	LDR	QC Flag
9	Be	6	NoGas	845.234	1.67	ppb	4.0	200	
11	B	6	NoGas	10438.700	20.67	ppb	2.9	20	OCAL
27	Al	72	NoGas	15317845.500	30332.37	ppb	3.7	1000	OCAL
51	V	45	He	34407.077	68.13	ppb	0.6	200	
52	Cr	45	He	49935.375	98.88	ppb	0.7	200	
55	Mn	72	NoGas	500719.125	991.52	ppb	3.0	200	OCAL
56	Fe	45	H2	14574234.368	28859.87	ppb	0.4	1000	OCAL
59	Co	72	NoGas	6418.679	12.71	ppb	3.3	200	
60	Ni	45	He	36141.318	71.57	ppb	0.4	500	
63	Cu	45	He	20067.089	39.74	ppb	0.8	500	
66	Zn	72	NoGas	809107.468	1602.19	ppb	3.7	1000	OCAL
75	As	115	He	6311.097	12.5	ppb	3.2	200	
78	Se	115	H2	3014.372	5.97	ppb	1.2	500	
98	Mo	115	NoGas	5972.711	11.83	ppb	2.8	200	
107	Ag	115	NoGas	256.510	0.51	ppb	2.0	50	
111	Cd	115	NoGas	3866.984	7.66	ppb	2.6	200	
118	Sn	115	NoGas	4551.170	9.01	ppb	3.1	200	
121	Sb	115	NoGas	271.265	0.54	ppb	2.6	25	
125	Te	115	NoGas	42.734	0.08	ppb	16.4	200	
133	Cs	115	NoGas	2216.104	4.39	ppb	1.7	200	
137	Ba	115	NoGas	109173.442	216.18	ppb	2.6	500	
205	Tl	209	NoGas	336.717	0.67	ppb	1.9	200	
208	Pb	209	NoGas	11231.100	22.24	ppb	2.1	500	
232	Th	209	NoGas	7196.928	14.25	ppb	3.1	200	
238	U	209	NoGas	5160.014	10.22	ppb	3.2	200	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	269799.16	0.8	88.3	60	120	
45	Sc	NoGas	2236890.95	2999252.80	2.6	134.08	60	120	FAIL
45	Sc	H2	575530.9	697817.84	0.4	121.25	60	120	FAIL
45	Sc	He	75575.01	90376.71	0.2	119.59	60	120	
72	Ge	NoGas	612217.62	638460.32	2.5	104.29	60	120	
72	Ge	H2	213670.36	195729.06	0.4	91.6	60	120	
72	Ge	He	58427.31	59662.32	1.2	102.11	60	120	
115	In	NoGas	2109467.73	2102661.53	1.2	99.68	60	120	
115	In	H2	1282135.47	1215100.27	0.7	94.77	60	120	
115	In	He	247218.64	226218.36	0.6	91.51	60	120	
159	Tb	NoGas	2633505.45	3047349.25	1.4	115.71	60	120	
209	Bi	NoGas	2664349.82	2794856.21	0.7	104.9	60	120	

Sample Name	CCV
File Name	041_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 7:28:06 PM
Sample Type	CCV
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	ExpValue	% Rec	QC Flag
9	Be	6	NoGas	104.150	3.8	100	104.15	
11	B	6	NoGas	11.358	3.7	10	113.58	CCV FAIL
27	Al	72	NoGas	558.090	2.0	500	111.62	CCV FAIL
51	V	45	He	102.232	0.7	100	102.23	
52	Cr	45	He	102.022	0.8	100	102.02	
55	Mn	72	NoGas	104.161	2.6	100	104.16	
56	Fe	45	H2	562.994	0.9	500	112.6	CCV FAIL
59	Co	72	NoGas	101.114	2.6	100	101.11	
60	Ni	45	He	256.172	0.6	250	102.47	
63	Cu	45	He	264.592	0.9	250	105.84	
66	Zn	72	NoGas	514.534	2.3	500	102.91	
75	As	115	He	102.342	0.3	100	102.34	
78	Se	115	H2	250.051	0.7	250	100.02	
98	Mo	115	NoGas	97.996	3.3	100	98	
107	Ag	115	NoGas	24.404	4.2	25	97.62	
111	Cd	115	NoGas	94.792	2.6	100	94.79	
118	Sn	115	NoGas	99.261	2.6	100	99.26	
121	Sb	115	NoGas	11.828	3.1	12.5	94.62	
125	Te	115	NoGas	96.460	2.6	100	96.46	
133	Cs	115	NoGas	99.182	1.5	100	99.18	
137	Ba	115	NoGas	252.279	2.3	250	100.91	
205	Tl	209	NoGas	102.510	1.4	100	102.51	
208	Pb	209	NoGas	252.320	2.0	250	100.93	
232	Th	209	NoGas	100.217	2.3	100	100.22	
238	U	209	NoGas	101.324	2.4	100	101.32	

QC ISTD Table

Name	Mass	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
Li	6	NoGas	305531.94	239715.25	0.3	78.46	60	120	
Sc	45	NoGas	2236890.95	2198982.34	0.8	98.31	60	120	
Sc	45	H2	575530.9	538035.19	0.5	93.49	60	120	
Sc	45	He	75575.01	69882.24	1.0	92.47	60	120	
Ge	72	NoGas	612217.62	587734.53	0.6	96	60	120	
Ge	72	H2	213670.36	202846.11	0.4	94.93	60	120	
Ge	72	He	58427.31	55157.71	0.9	94.4	60	120	
In	115	NoGas	2109467.73	2142646.25	0.9	101.57	60	120	
In	115	H2	1282135.47	1292957.76	0.3	100.84	60	120	
In	115	He	247218.64	240023.66	0.6	97.09	60	120	
Tb	159	NoGas	2633505.45	2755548.99	0.4	104.63	60	120	
Bi	209	NoGas	2664349.82	2923468.15	0.6	109.73	60	120	

Sample Name	CCB
File Name	042_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\wg415986_7.b
Acq Time	1/12/2017 7:30:03 PM
Sample Type	CCB
Total Dilution	1.0000

QC Analyte Table

Mass	Name	ISTD	Tune Mode	Concentration	Conc. RSD	Limit	QC Flag
9	Be	6	NoGas	0.276	19.4	0.15	CCB FAIL
11	B	6	NoGas	0.581	5.8	1.5	
27	Al	72	NoGas	5.849	22.0	3	CCB FAIL
51	V	45	He	-0.324	N/A	0.6	
52	Cr	45	He	0.072	14.1	1.5	
55	Mn	72	NoGas	0.488	16.7	1.5	
59	Co	72	NoGas	0.205	23.6	0.15	CCB FAIL
60	Ni	45	He	0.170	10.2	1.8	
63	Cu	45	He	0.284	13.8	1.5	
66	Zn	72	NoGas	1.391	20.8	6	
75	As	115	He	0.085	119.3	0.6	
78	Se	115	H2	0.261	9.0	0.3	
107	Ag	115	NoGas	0.050	23.6	0.15	
111	Cd	115	NoGas	0.199	22.7	0.3	
118	Sn	115	NoGas	0.223	20.2	0.3	
121	Sb	115	NoGas	0.067	17.6	1.2	
125	Te	115	NoGas	0.191	19.6	3	
133	Cs	115	NoGas	0.204	23.3	0.6	
137	Ba	115	NoGas	0.523	22.1	1.5	
205	Tl	209	NoGas	0.212	26.9	0.3	
208	Pb	209	NoGas	0.575	21.3	0.3	CCB FAIL
232	Th	209	NoGas	0.219	22.7	3	
238	U	209	NoGas	0.205	21.7	0.3	

QC ISTD Table

Mass	Name	Tune Mode	Reference CPS	CPS	CPS RSD	% Rec	%QC Low	%QC High	QC Flag
6	Li	NoGas	305531.94	242604.14	0.7	79.4	60	120	
45	Sc	NoGas	2236890.95	2189374.57	0.4	97.88	60	120	
45	Sc	H2	575530.9	534957.29	0.7	92.95	60	120	
45	Sc	He	75575.01	70066.31	0.5	92.71	60	120	
72	Ge	NoGas	612217.62	589556.58	0.3	96.3	60	120	
72	Ge	H2	213670.36	202122.85	0.3	94.6	60	120	
72	Ge	He	58427.31	55823.63	1.0	95.54	60	120	
115	In	NoGas	2109467.73	2137356.89	0.3	101.32	60	120	
115	In	H2	1282135.47	1257141.48	0.2	98.05	60	120	
115	In	He	247218.64	233534.19	0.6	94.46	60	120	
159	Tb	NoGas	2633505.45	2711320.94	0.2	102.95	60	120	
209	Bi	NoGas	2664349.82	2791827.11	0.8	104.78	60	120	

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG416190

ACZ Laboratories, Inc

Instrument ID: ICPMS5
Analyst: ENB
ACZ Dept: 33
Create Date: 01/13/2017 14:01
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 3050	CD MS 3050	PB MS 3050	SE MS 3050	Dilution
1	WG416190ICV	MS161128-3			1			✓	✓	✓	✓	1
2	WG416190ICB	NONE			1			✓	✓	✓	✓	1
3	WG416190ICSA	MS161201-9			1			✓	✓	✓	✓	1
4	WG416190ICSAB	MS161201-10			1			✓	✓	✓	✓	1
5	WG416190WASH	NONE			1			✓	✓	✓	✓	1
6	WG415792PBS	NONE			100			✓	✓		✓	500
7	WG415792LCSS1	PCN52516			100			✓	✓		✓	5000
8	WG415792LCSSD1	PCN52516			100			✓	✓		✓	5000
9	L34674-02	SB-07GT (0-4)			102	0.174					✓	510
10	L34674-04	SB-09GT (18-22)			102	0.23					✓	510
11	L34674-07	SB-14AL (0-15)			102	0.329					✓	510
12	L34674-07MS	MS161205-2			102			✓	✓		✓	510
13	WG416190CCV1	MS161201-14			1			✓	✓	✓	✓	1
14	WG416190CCB1	NONE			1			✓	✓	✓	✓	1
15	L34674-07MSD	MS161205-2			102			✓	✓		✓	510
16	L34674-11	SB-01_02GT (1.5-6.5)			102						✓	510
17	L34674-12	TP-6 (7-10)-DUPLICAT			102						✓	510
18	L34674-13	TP-20 (12-14)-DUPLIC			101						✓	505
19	L34674-13SDL	NONE			1			✓	✓	✓	✓	505
20	WG416146PBS	NONE			100			✓	✓	✓		500
21	WG416146LCSS1	PCN52516			100			✓	✓	✓		5000
22	WG416146LCSSD1	PCN52516			100			✓	✓	✓		5000

Report Comments:

Internal Comments

AREV: ENB 1/16/17
Initials, Date

SREV: SB 1.16.17
Initials, Date

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG416190

ACZ Laboratories, Inc

Instrument ID: ICPMS5
Analyst:
ACZ Dept: 33
Create Date: 01/13/2017 14:01
Start Date/Time:
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 3050	CD MS 3050	PB MS 3050	SE MS 3050	Dilution
23	L34635-03	LPT-1			113			☑	☑	☑	☐	565
24	L34635-03MS	MS161205-2			113			☑	☑	☑	☐	565
25	WG416190CCV2	MS161201-14			1			☑	☑	☑	☑	1
26	WG416190CCB2	NONE			1			☑	☑	☑	☑	1
27	L34635-03MSD	MS161205-2			113			☑	☑	☑	☐	565
28	WG416190CCV3	MS161201-14			1			☑	☑	☑	☑	1
29	WG416190CCB3	NONE			1			☑	☑	☑	☑	1

Sample	Login Comments
L34635-03	SJ || Located on the Quarantine Shelf.
L34635-03MS	ICPMS Spike
L34635-03MSD	ICPMS Spike
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07MS	ICPMS Spike
L34674-07MSD	ICPMS Spike
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34674-1701201346

ACZ Laboratories, Inc.

ICPMS DATA REVIEW CHECKLIST

AREV:	ENB
Date:	1/16/17
SREV:	[signature]
Date:	1/16/17

Workgroup:	416190
Sample Type:	3050
Analysis Date:	1/13/17
Analyst:	ENB

	Yes	No	N/A
1) Is the instrument ID on the bench sheet correct?	✓		
2) Has a passing method tune been performed within 24 hours?	✓		
3) Was the low calibration point dropped? If yes, notify PM of change to PQLs.			✓
4) Is the linear regression ≥ 0.995 for the analytes of interest?	✓		
5) Was the PQV standard analyzed & evaluated for DW samples ? (Fail in LIMS if no DW sxs in WG.)			✓
6) Do the dilution factors on the benchsheet match the sequence in the raw data?	✓		
7) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			✓
8) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
9) Are the % Recoveries of the internal standards within the method limits?	✓		
10) Are all of the QC critera listed in LIMS within specified limits?		✓	
11) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?	✓		
12) Are all errors properly crossed out (i.e. single-line, dated & initialed)?	✓		
13) Is a current standard/reagent form attached to the workgroup?	✓		
14) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
1035-03MSD	As ↓ Se ↓	No Sx
1035-03	OCAL AS	Redo @ 100x bench

ACZ Labs, Inc.
Standards/Reagents Information
ICPMS, Methods 6020 and 200.8

Calibration Standards

6020/200.8 Stock #1: MS161201-11 SCN
6020/200.8 Stock #2: MS161201-12 SCN
6020/200.8 Stock #3: MS161201-13 SCN

PQV STD: MS161201-7 SCN
Exp. 3/1/2017

INT STD: MS160923-1 SCN
Exp. 8/25/2017

Nitric Acid: 52053 PCN

Hydrochloric Acid: 51241 PCN

VERIFIED: ELB

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416190

Date Reported: 16-Jan-17
Run ID: R1492909
Date Analyzed: 13-Jan-17
ICAL Workgroup:
Instrument ID: ICPMS5

WG416190ICV

Tag: Measured: 1/13/2017 6:42:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.05172	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	103	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.0521	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	104	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.05419	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	108	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.0523	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	105	1		%	++	0.0001	0.0003			

WG416190ICB

Tag: Measured: 1/13/2017 6:45:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	LEAD	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			

WG416190ICSA

Tag: Measured: 1/13/2017 6:48:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			

WG416190ICSAB

Tag: Measured: 1/13/2017 6:51:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.02018	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.01911	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	95	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.01952	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	97	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.01922	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	96	1		%	++	0.0001	0.0003			

WG415792PBS

Tag: 1 Measured: 1/13/2017 6:58:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		500	U	mg/Kg	++	0.1	0.5			
SREV	CADMIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			
SREV	LEAD	FOUND		500	U	mg/Kg	++	0.05	0.3			
SREV	SELENIUM	FOUND		500	U	mg/Kg	++	0.05	0.1			

WG415792LCSS1 Tag: 1 Measured: 1/13/2017 7:01:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	137	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	94	5000		%	++	1	5			
SREV	CADMIUM	FOUND	82.1	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	94	5000		%	++	0.5	3			
SREV	LEAD	FOUND	139.65	5000		mg/Kg	++	0.5	3			
SREV	LEAD	REC	96	5000		%	++	0.5	3			
SREV	SELENIUM	FOUND	165.2	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	93	5000		%	++	0.5	1			

WG415792LCSSD Tag: 1 Measured: 1/13/2017 7:04:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	134.8	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	93	5000		%	++	1	5			
SREV	ARSENIC	RPD	2	5000		%	++	1	5			
SREV	CADMIUM	FOUND	80.8	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	92	5000		%	++	0.5	3			
SREV	CADMIUM	RPD	2	5000		%	++	0.5	3			
SREV	LEAD	FOUND	138.65	5000		mg/Kg	++	0.5	3			
SREV	LEAD	REC	95	5000		%	++	0.5	3			
SREV	LEAD	RPD	1	5000		%	++	0.5	3			
SREV	SELENIUM	FOUND	164.8	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	93	5000		%	++	0.5	1			
SREV	SELENIUM	RPD	0	5000		%	++	0.5	1			

L34674-02 Tag: 1 Measured: 1/13/2017 7:07:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SELENIUM	-MS-3050	.22	510		mg/Kg	++	0.05	0.1			

L34674-04 Tag: 1 Measured: 1/13/2017 7:11:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SELENIUM	-MS-3050	.74	510		mg/Kg	++	0.05	0.1			

L34674-07 Tag: 1 Measured: 1/13/2017 7:14:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	ARSENIC	REG	6.5	510		mg/Kg	++	0.1	0.5			
NEED	CADMIUM	REG	3.14	510		mg/Kg	++	0.05	0.3			
NEED	LEAD	REG	19.4	510		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.68	510		mg/Kg	++	0.05	0.1			

L34674-07MS Tag: 1 Measured: 1/13/2017 7:17:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	30.51	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	94	510		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	27.744	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	96	510		%	++	0.05	0.3			
SREV	LEAD	FOUND	43.442	510		mg/Kg	++	0.05	0.3			
SREV	LEAD	REC	94	510		%	++	0.05	0.3			
SREV	SELENIUM	FOUND	13.056	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	97	510		%	++	0.05	0.1			

L34674-07MSD

Tag: 1 Measured: 1/13/2017 7:20:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	30.4	510		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	94	510		%	++	0.1	0.5			
SREV	ARSENIC	RPD	0	510		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	28.213	510		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	98	510		%	++	0.05	0.3			
SREV	CADMIUM	RPD	2	510		%	++	0.05	0.3			
SREV	LEAD	FOUND	44.365	510		mg/Kg	++	0.05	0.3			
SREV	LEAD	REC	98	510		%	++	0.05	0.3			
SREV	LEAD	RPD	2	510		%	++	0.05	0.3			
SREV	SELENIUM	FOUND	12.128	510		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	90	510		%	++	0.05	0.1			
SREV	SELENIUM	RPD	7	510		%	++	0.05	0.1			

WG416190CCV1

Tag: Measured: 1/13/2017 7:23:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.09646	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	96	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.09434	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	94	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.2417	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	96	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.2574	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	103	1		%	++	0.0001	0.0003			

WG416190CCB1

Tag: Measured: 1/13/2017 7:26:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	LEAD	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.0002	1	B	mg/L	++	0.0001	0.0003			

L34674-11

Tag: 1 Measured: 1/13/2017 7:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SELENIUM	-MS-3050	.20	510		mg/Kg	++	0.05	0.1			

L34674-12

Tag: 1 Measured: 1/13/2017 7:33:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SELENIUM	-MS-3050	.50	510		mg/Kg	++	0.05	0.1			

L34674-13

Tag: 1 Measured: 1/13/2017 7:36:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	ARSENIC	REG	6.2	505		mg/Kg	++	0.1	0.5			
NEED	CADMIUM	REG	1.20	505		mg/Kg	++	0.05	0.3			
NEED	LEAD	REG	23.8	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	-MS-3050	.53	505		mg/Kg	++	0.05	0.1			

L34674-13SDL

Tag: Measured: 1/13/2017 7:39:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	D	10	505		%	++	0.1	0.5			
SREV	ARSENIC	FOUND	1.36	505		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REG	6.8	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	D	0	505		%	++	0.05	0.3			
SREV	CADMIUM	FOUND	0.241	505	B	mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REG	1.205	505	B	mg/Kg	++	0.05	0.3			
SREV	LEAD	D	1	505		%	++	0.05	0.3			
SREV	LEAD	FOUND	4.713	505		mg/Kg	++	0.05	0.3			
SREV	LEAD	REG	23.565	505		mg/Kg	++	0.05	0.3			
SREV	SELENIUM	D	3	505		%	++	0.05	0.1			
SREV	SELENIUM	FOUND	0.103	505		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REG	0.515	505		mg/Kg	++	0.05	0.1			

WG416146PBS

Tag: Measured: 1/13/2017 7:42:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		500	U	mg/Kg	++	0.1	0.5			
SREV	CADMIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			
SREV	LEAD	FOUND		500	U	mg/Kg	++	0.05	0.3			
SREV	SELENIUM	FOUND		500	U	mg/Kg	++	0.05	0.1			

WG416146LCSS1

Tag: Measured: 1/13/2017 7:46:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	140.3	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	97	5000		%	++	1	5			
SREV	CADMIUM	FOUND	83.05	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	95	5000		%	++	0.5	3			
SREV	LEAD	FOUND	148.9	5000		mg/Kg	++	0.5	3			
SREV	LEAD	REC	102	5000		%	++	0.5	3			
SREV	SELENIUM	FOUND	172.45	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	97	5000		%	++	0.5	1			

WG416146LCSSD

Tag: Measured: 1/13/2017 7:49:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	145.4	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	100	5000		%	++	1	5			
SREV	ARSENIC	RPD	4	5000		%	++	1	5			
SREV	CADMIUM	FOUND	80.05	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	91	5000		%	++	0.5	3			
SREV	CADMIUM	RPD	4	5000		%	++	0.5	3			
SREV	LEAD	FOUND	141.2	5000		mg/Kg	++	0.5	3			
SREV	LEAD	REC	97	5000		%	++	0.5	3			
SREV	LEAD	RPD	5	5000		%	++	0.5	3			
SREV	SELENIUM	FOUND	167	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	94	5000		%	++	0.5	1			
SREV	SELENIUM	RPD	3	5000		%	++	0.5	1			

L34635-03

Tag: Measured: 1/13/2017 7:52:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	2010	565	O	mg/Kg	OCAL	0.1	0.6			
SREV	CADMIUM	-MS-3050	27.5	565		mg/Kg	++	0.06	0.3			
SREV	LEAD	-MS-3050	34.1	565		mg/Kg	++	0.06	0.3			
NEED	SELENIUM	REG	.33	565		mg/Kg	++	0.06	0.1			

L34635-03MS

Tag: Measured: 1/13/2017 7:55:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	ARSENIC	FOUND	1958.86	565		mg/Kg	++	0.1	0.6			
FAIL	ARSENIC	REC	-181	565		%	ALRT	0.1	0.6			
SREV	CADMIUM	FOUND	52.703	565		mg/Kg	++	0.06	0.3			
SREV	CADMIUM	REC	89	565		%	++	0.06	0.3			
SREV	LEAD	FOUND	63.111	565		mg/Kg	++	0.06	0.3			
SREV	LEAD	REC	102	565		%	++	0.06	0.3			
FAIL	SELENIUM	FOUND	10.605	565		mg/Kg	++	0.06	0.1			
FAIL	SELENIUM	REC	73	565		%	ALRT	0.06	0.1			

L34635-03MSD

Tag: Measured: 1/13/2017 7:58:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	ARSENIC	FOUND	2002.93	565		mg/Kg	++	0.1	0.6			
FAIL	ARSENIC	REC	-25	565		%	ALRT	0.1	0.6			
FAIL	ARSENIC	RPD	2	565		%	++	0.1	0.6			
SREV	CADMIUM	FOUND	51.522	565		mg/Kg	++	0.06	0.3			
SREV	CADMIUM	REC	85	565		%	++	0.06	0.3			
SREV	CADMIUM	RPD	2	565		%	++	0.06	0.3			
SREV	LEAD	FOUND	61.303	565		mg/Kg	++	0.06	0.3			
SREV	LEAD	REC	96	565		%	++	0.06	0.3			
SREV	LEAD	RPD	3	565		%	++	0.06	0.3			
FAIL	SELENIUM	FOUND	10.549	565		mg/Kg	++	0.06	0.1			
FAIL	SELENIUM	REC	72	565		%	ALRT	0.06	0.1			
FAIL	SELENIUM	RPD	1	565		%	++	0.06	0.1			

WG416190CCV2

Tag: Measured: 1/13/2017 8:01:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.1018	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	102	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.09261	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	93	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.2398	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	96	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.2328	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	93	1		%	++	0.0001	0.0003			

WG416190CCB2

Tag: Measured: 1/13/2017 8:04:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.00046	1	B	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.00011	1	B	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.00015	1	B	mg/L	++	0.0001	0.0003			

WG416190CCV3

Tag:

Measured: 1/13/2017 8:07:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	ARSENIC	FOUND	0.1033	1		mg/L	++	0.0002	0.001			
FAIL	ARSENIC	REC	103	1		%	++	0.0002	0.001			
FAIL	CADMIUM	FOUND	0.09477	1		mg/L	++	0.0001	0.0005			
FAIL	CADMIUM	REC	95	1		%	++	0.0001	0.0005			
FAIL	LEAD	FOUND	0.2441	1		mg/L	++	0.0001	0.0005			
FAIL	LEAD	REC	97	1		%	++	0.0001	0.0005			
FAIL	SELENIUM	FOUND	0.2399	1		mg/L	++	0.0001	0.0003			
FAIL	SELENIUM	REC	96	1		%	++	0.0001	0.0003			

WG416190CCB3

Tag:

Measured: 1/13/2017 8:10:00 PM

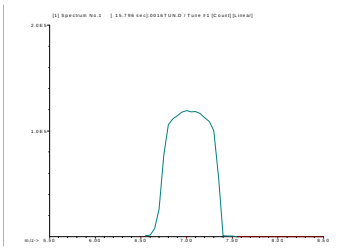
Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
FAIL	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
FAIL	LEAD	FOUND	0.00011	1	B	mg/L	++	0.0001	0.0005			
FAIL	SELENIUM	FOUND	0.00016	1	B	mg/L	++	0.0001	0.0003			

6020 QC Tune Report

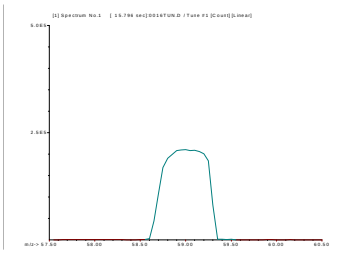
Data File: C:\ICPCHEM\1\DATA\170113at.b\0016TUN.D
Date Acquired: Jan 13 2017 01:29 pm
Acq. Method: TN6020.M
Operator: SCP
Sample Name: 6020 Tune
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

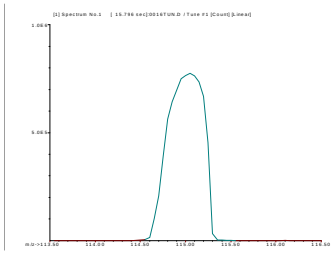
Element	Actual	Required	Flag
7 Li	0.90	5.00	
59 Co	1.51	5.00	
115 In	1.79	5.00	
205 Tl	1.46	5.00	



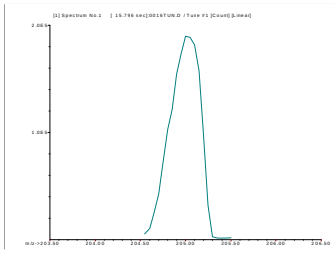
7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.00
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



115 In
Mass Calib.
Actual: 115.05
Required: 114.90 - 115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



205 Tl
Mass Calib.
Actual: 205.05
Required: 204.90 - 205.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

Calibration Coefficients

Sample Name: **ICV**
Date Acquired: **Jan 13 2017 06:42 pm**
Acq. Method: **ACZ.M**
Current Method Pa**\ICPCHEM\1\DATA\wg416190.b**
Calibration Path**\ICPCHEM\1\DATA\wg416190.b**

Element Name	Mass	Calibration Corr Coef	Tune Step	IS Ref
Be	9	0.9969	3	6
B	11	0.9977	3	6
Al	27	0.9985	3	72
V	51	0.9990	2	45
Cr	52	0.9987	2	45
Mn	55	0.9987	3	72
Fe	56	0.9988	1	45
Co	59	0.9990	3	72
Ni	60	0.9986	2	45
Cu	63	0.9992	2	45
Zn	66	0.9991	3	72
As	75	0.9990	2	45
Se	78	0.9990	1	45
Mo	98	0.9991	3	115
Ag	107	0.9990	3	115
Cd	111	0.9989	3	115
Sn	118	0.9990	3	115
Sb	121	0.9985	3	115
Te	125	0.9992	3	115
Cs	133	0.9993	3	115
Ba	137	0.9993	3	115
Tl	205	0.9994	3	209
Pb	208	0.9991	3	209
Th	232	0.9986	3	209
U	238	0.9992	3	209

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\001CAL
Date Acquired: Jan 13 2017 06:20 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:21 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1079402.00	A	24850.00	2.30
9	Be	277.79	P	10.72	3.86
11	B	21560.31	P	290.00	1.35
27	Al	23377.77	P	442.70	1.89
45	Sc	1915634.00	A	43280.00	2.26
45	Sc	311297.50	P	4466.00	1.43
45	Sc	5152712.00	A	50360.00	0.98
51	V	1483.46	P	61.20	4.13
52	Cr	323.35	P	64.30	19.89
55	Mn	17409.69	P	415.90	2.39
56	Fe	7342.81	P	158.00	2.15
59	Co	626.70	P	72.19	11.52
60	Ni	110.00	P	27.28	24.80
63	Cu	5366.72	P	88.07	1.64
66	Zn	2556.98	P	92.93	3.63
72	Ge	590798.88	P	9179.00	1.55
72	Ge	164764.09	P	4515.00	2.74
72	Ge	1155099.00	A	4076.00	0.35
74	Ge	826754.81	M	8432.00	1.02
74	Ge	241749.09	P	4504.00	1.86
74	Ge	1571251.00	A	11480.00	0.73
75	As	118.89	P	20.37	17.13
78	Se	29.89	P	4.50	15.06
98	Mo	505.39	P	20.89	4.13
99			P		
106	Cd		P		
107	Ag	335.57	P	18.36	5.47
108	Cd		P		
111	Cd	78.39	P	14.76	18.83
115	In	2864163.00	A	42410.00	1.48
115	In	715166.69	P	11910.00	1.67
115	In	3726442.00	A	39990.00	1.07
118	Sn	6417.23	P	135.10	2.11
121	Sb	3155.41	P	262.50	8.32
125	Te	63.34	P	3.33	5.26
133	Cs	2165.80	P	56.72	2.62
137	Ba	224.45	P	21.69	9.66
159	Tb	4896915.00	A	66900.00	1.37
205	Tl	556.70	P	49.11	8.82
206	(Pb)		P		
207	(Pb)		P		
208	Pb	1203.40	P	94.52	7.85
209	Bi	5397822.00	A	68800.00	1.27
232	Th	10177.63	P	213.40	2.10
238	U	703.38	P	65.58	9.32

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\002CAL
Date Acquired: Jan 13 2017 06:23 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:21 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1085195.00	A	20970.00	1.93
9	Be	262.23	P	25.46	9.71
11	B	19516.37	P	342.50	1.75
27	Al	22810.22	P	939.80	4.12
45	Sc	1865257.00	A	5111.00	0.27
45	Sc	311811.31	P	8027.00	2.57
45	Sc	5142001.00	A	56750.00	1.10
51	V	1501.24	P	38.35	2.55
52	Cr	276.68	P	62.27	22.51
55	Mn	17014.76	P	468.10	2.75
56	Fe	6778.82	P	102.80	1.52
59	Co	610.03	P	76.89	12.60
60	Ni	87.78	P	8.39	9.56
63	Cu	5171.08	P	69.39	1.34
66	Zn	2410.28	P	29.07	1.21
72	Ge	581129.38	P	2483.00	0.43
72	Ge	164238.91	P	2847.00	1.73
72	Ge	1154623.00	A	9186.00	0.80
74	Ge	821486.38	M	8196.00	1.00
74	Ge	245120.50	P	1515.00	0.62
74	Ge	1582782.00	A	9894.00	0.63
75	As	101.12	P	10.18	10.07
78	Se	24.44	P	3.47	14.19
98	Mo	360.77	P	47.25	13.10
99			P		
106	Cd		P		
107	Ag	177.79	P	40.32	22.68
108	Cd		P		
111	Cd	52.18	P	7.66	14.68
115	In	2863727.00	A	10880.00	0.38
115	In	726927.13	P	16030.00	2.21
115	In	3746289.00	A	33300.00	0.89
118	Sn	4818.77	P	146.70	3.04
121	Sb	1769.03	P	141.00	7.97
125	Te	48.89	P	3.85	7.87
133	Cs	2093.56	P	60.11	2.87
137	Ba	208.90	P	15.03	7.19
159	Tb	4901359.00	A	52740.00	1.08
205	Tl	393.35	P	41.77	10.62
206	(Pb)		P		
207	(Pb)		P		
208	Pb	1027.83	P	96.98	9.44
209	Bi	5431659.00	A	98680.00	1.82
232	Th	5369.08	P	250.80	4.67
238	U	551.14	P	25.02	4.54

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\003CAL
Date Acquired: Jan 13 2017 06:26 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:25 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1119822.00	A	12920.00	1.15
9	Be	214.45	P	25.24	11.77
11	B	17822.08	P	214.90	1.21
27	Al	28806.09	P	766.20	2.66
45	Sc	1919480.00	A	22490.00	1.17
45	Sc	323278.19	P	1800.00	0.56
45	Sc	5346593.00	A	103700.00	1.94
51	V	1427.90	P	68.84	4.82
52	Cr	324.46	P	30.06	9.26
55	Mn	17077.02	P	125.20	0.73
56	Fe	13774.26	P	116.40	0.85
59	Co	583.37	P	29.63	5.08
60	Ni	212.23	P	27.76	13.08
63	Cu	6147.04	P	18.36	0.30
66	Zn	5217.79	P	205.20	3.93
72	Ge	593717.38	P	4334.00	0.73
72	Ge	172904.80	P	2055.00	1.19
72	Ge	1194592.00	A	13950.00	1.17
74	Ge	836320.19	M	5688.00	0.68
74	Ge	250887.09	P	1743.00	0.69
74	Ge	1631365.00	A	15290.00	0.94
75	As	107.78	P	19.53	18.12
78	Se	29.11	P	6.05	20.78
98	Mo	303.01	P	38.54	12.72
99			P		
106	Cd		P		
107	Ag	264.46	P	15.03	5.68
108	Cd		P		
111	Cd	58.98	P	29.55	50.10
115	In	2941832.00	A	27950.00	0.95
115	In	742519.38	P	7748.00	1.04
115	In	3915329.00	A	30480.00	0.78
118	Sn	7332.14	P	147.40	2.01
121	Sb	1181.18	P	97.83	8.28
125	Te	55.56	P	3.85	6.93
133	Cs	2083.56	P	97.15	4.66
137	Ba	341.13	P	11.71	3.43
159	Tb	5106562.00	A	20020.00	0.39
205	Tl	390.02	P	36.06	9.25
206	(Pb)		P		
207	(Pb)		P		
208	Pb	1342.30	P	23.65	1.76
209	Bi	5653738.00	A	20340.00	0.36
232	Th	3692.89	P	149.40	4.05
238	U	543.38	P	43.70	8.04

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\004CALS.D\004CALS.D#
Date Acquired: Jan 13 2017 06:29 pm
Operator:
Sample Name: PQV Std
Misc Info:
Vial Number: 1103
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:28 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1123450.00	A	24850.00	2.21
9	Be	1178.98	P	22.20	1.88
11	B	19293.85	P	686.30	3.56
27	Al	120341.10	P	6720.00	5.58
45	Sc	1972672.00	A	5920.00	0.30
45	Sc	322255.59	P	2087.00	0.65
45	Sc	5366459.00	A	40660.00	0.76
51	V	5762.43	P	73.22	1.27
52	Cr	9443.34	P	104.50	1.11
55	Mn	93524.39	P	1449.00	1.55
56	Fe	116499.40	P	627.90	0.54
59	Co	6629.50	P	157.60	2.38
60	Ni	5903.60	P	194.70	3.30
63	Cu	17994.88	P	452.40	2.51
66	Zn	20029.83	P	777.10	3.88
72	Ge	604517.50	P	7013.00	1.16
72	Ge	168905.91	P	2582.00	1.53
72	Ge	1197921.00	A	11220.00	0.94
74	Ge	839250.63	A	3243.00	0.39
74	Ge	248992.80	P	2006.00	0.81
74	Ge	1639496.00	A	10930.00	0.67
75	As	801.16	P	58.25	7.27
78	Se	109.67	P	9.06	8.26
98	Mo	26507.99	P	256.10	0.97
99			P		
106	Cd		P		
107	Ag	4165.21	P	94.56	2.27
108	Cd		P		
111	Cd	1732.40	P	102.90	5.94
115	In	2995983.00	A	26950.00	0.90
115	In	739209.81	P	7126.00	0.96
115	In	3901696.00	A	34670.00	0.89
118	Sn	8745.19	P	237.60	2.72
121	Sb	29318.44	P	127.90	0.44
125	Te	3152.69	P	154.60	4.90
133	Cs	47585.07	P	830.80	1.75
137	Ba	14761.57	P	120.30	0.81
159	Tb	5162656.00	A	96210.00	1.86
205	Tl	13705.27	P	198.50	1.45
206	(Pb)		P		
207	(Pb)		P		
208	Pb	19646.34	P	277.10	1.41
209	Bi	5701446.00	A	73690.00	1.29
232	Th	178321.09	P	4256.00	2.39
238	U	19042.17	P	54.02	0.28

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1123449.60	2.21	1119822.60	100.3	59.5 - 120.4	
45	Sc	1972671.90	0.30	1919480.10	102.8	59.5 - 120.4	
45	Sc	322255.63	0.65	323278.19	99.7	59.5 - 120.4	
45	Sc	5366458.50	0.76	5346593.50	100.4	59.5 - 120.4	
72	Ge	604517.50	1.16	593717.44	101.8	59.5 - 120.4	
72	Ge	168905.89	1.53	172904.84	97.7	59.5 - 120.4	
72	Ge	1197921.30	0.94	1194592.10	100.3	59.5 - 120.4	
74	Ge	839250.63	0.39	836320.19	100.4	59.5 - 120.4	
74	Ge	248992.78	0.81	250887.13	99.2	59.5 - 120.4	
74	Ge	1639496.10	0.67	1631365.00	100.5	59.5 - 120.4	
115	In	2995983.50	0.90	2941832.50	101.8	59.5 - 120.4	
115	In	739209.75	0.96	742519.38	99.6	59.5 - 120.4	
115	In	3901695.80	0.89	3915329.50	99.7	59.5 - 120.4	
159	Tb	5162656.00	1.86	5106562.50	101.1	59.5 - 120.4	
209	Bi	5701445.50	1.29	5653738.00	100.8	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\005CALS.D\005CALS.D#
Date Acquired: Jan 13 2017 06:32 pm
Operator:
Sample Name: Level 3 Std
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:31 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	1131992.00	A	29150.00	2.58
9 Be	80120.41	P	1309.00	1.63
11 B	21299.88	P	147.20	0.69
27 Al	1916148.00	A	18610.00	0.97
45 Sc	1967100.00	A	43090.00	2.19
45 Sc	328828.41	P	9952.00	3.03
45 Sc	5389075.00	A	48970.00	0.91
51 V	89801.00	P	1251.00	1.39
52 Cr	95816.27	P	1392.00	1.45
55 Mn	636782.13	P	3567.00	0.56
56 Fe	1143243.00	A	15570.00	1.36
59 Co	521414.00	P	1158.00	0.22
60 Ni	103517.10	P	414.50	0.40
63 Cu	274132.00	P	2261.00	0.82
66 Zn	362966.00	P	822.00	0.23
72 Ge	601334.50	P	9710.00	1.61
72 Ge	173881.70	P	1824.00	1.05
72 Ge	1206010.00	A	5069.00	0.42
74 Ge	851918.00	A	19610.00	2.30
74 Ge	255930.09	P	3940.00	1.54
74 Ge	1648365.00	A	15680.00	0.95
75 As	14049.41	P	429.30	3.06
78 Se	18505.38	P	272.70	1.47
98 Mo	213797.09	P	2481.00	1.16
99		P		
106 Cd		P		
107 Ag	85194.70	P	773.60	0.91
108 Cd		P		
111 Cd	69736.01	P	631.60	0.91
115 In	3003667.00	A	76150.00	2.54
115 In	756568.88	P	20360.00	2.69
115 In	3993142.00	A	53760.00	1.35
118 Sn	214460.20	P	1155.00	0.54
121 Sb	38271.97	P	388.90	1.02
125 Te	12523.76	P	91.09	0.73
133 Cs	942336.19	M	6141.00	0.65
137 Ba	302092.69	P	3384.00	1.12
159 Tb	5186560.00	A	27830.00	0.54
205 Tl	574902.00	P	9449.00	1.64
206 (Pb)		P		
207 (Pb)		P		
208 Pb	1968470.00	A	39850.00	2.02
209 Bi	5774037.00	A	20920.00	0.36
232 Th	796191.38	P	15290.00	1.92
238 U	775572.38	P	19680.00	2.54

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1131991.90	2.58	1119822.60	101.1	59.5 - 120.4	
45 Sc	1967100.40	2.19	1919480.10	102.5	59.5 - 120.4	
45 Sc	328828.41	3.03	323278.19	101.7	59.5 - 120.4	
45 Sc	5389074.50	0.91	5346593.50	100.8	59.5 - 120.4	
72 Ge	601334.50	1.61	593717.44	101.3	59.5 - 120.4	
72 Ge	173881.73	1.05	172904.84	100.6	59.5 - 120.4	
72 Ge	1206009.60	0.42	1194592.10	101.0	59.5 - 120.4	
74 Ge	851918.00	2.30	836320.19	101.9	59.5 - 120.4	
74 Ge	255930.13	1.54	250887.13	102.0	59.5 - 120.4	
74 Ge	1648365.50	0.95	1631365.00	101.0	59.5 - 120.4	
115 In	3003667.30	2.54	2941832.50	102.1	59.5 - 120.4	
115 In	756568.94	2.69	742519.38	101.9	59.5 - 120.4	
115 In	3993142.50	1.35	3915329.50	102.0	59.5 - 120.4	
159 Tb	5186560.00	0.54	5106562.50	101.6	59.5 - 120.4	
209 Bi	5774036.50	0.36	5653738.00	102.1	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\006CALS.D\006CALS.D#
Date Acquired: Jan 13 2017 06:36 pm
Operator:
Sample Name: Level 4 Std
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:34 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1093187.00	A	20300.00	1.86
9	Be	359437.41	P	6317.00	1.76
11	B	35606.77	P	422.50	1.19
27	Al	8299393.00	A	126700.00	1.53
45	Sc	1968825.00	A	44770.00	2.27
45	Sc	329144.31	P	8624.00	2.62
45	Sc	5239069.00	A	25700.00	0.49
51	V	399901.91	P	3273.00	0.82
52	Cr	437330.31	P	3817.00	0.87
55	Mn	2834549.00	A	12490.00	0.44
56	Fe	5161135.00	A	51200.00	0.99
59	Co	2378277.00	A	14900.00	0.63
60	Ni	472683.50	P	1416.00	0.30
63	Cu	1250105.00	A	16090.00	1.29
66	Zn	1661116.00	A	10630.00	0.64
72	Ge	598518.69	P	8763.00	1.46
72	Ge	173764.80	P	2440.00	1.40
72	Ge	1179261.00	A	11190.00	0.95
74	Ge	848701.50	M	5927.00	0.70
74	Ge	254656.50	P	3863.00	1.52
74	Ge	1615064.00	A	24620.00	1.52
75	As	64151.73	P	540.60	0.84
78	Se	85876.54	P	814.00	0.95
98	Mo	982814.50	A	16010.00	1.63
99			P		
106	Cd		P		
107	Ag	380314.69	P	1923.00	0.51
108	Cd		P		
111	Cd	311377.81	P	1884.00	0.61
115	In	3020230.00	A	72320.00	2.39
115	In	755874.00	P	14520.00	1.92
115	In	3837781.00	A	11340.00	0.30
118	Sn	947453.31	M	12890.00	1.36
121	Sb	155373.00	P	2511.00	1.62
125	Te	55641.88	P	118.40	0.21
133	Cs	4177730.00	A	34770.00	0.83
137	Ba	1365355.00	A	13710.00	1.00
159	Tb	5038673.00	A	81900.00	1.63
205	Tl	2566165.00	A	67760.00	2.64
206	(Pb)		A		
207	(Pb)		A		
208	Pb	8755406.00	A	171800.00	1.96
209	Bi	5712742.00	A	99590.00	1.74
232	Th	3570890.00	A	58810.00	1.65
238	U	3435591.00	A	46600.00	1.36

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1093187.50	1.86	1119822.60	97.6	59.5 - 120.4	
45	Sc	1968825.60	2.27	1919480.10	102.6	59.5 - 120.4	
45	Sc	329144.28	2.62	323278.19	101.8	59.5 - 120.4	
45	Sc	5239068.50	0.49	5346593.50	98.0	59.5 - 120.4	
72	Ge	598518.75	1.46	593717.44	100.8	59.5 - 120.4	
72	Ge	173764.78	1.40	172904.84	100.5	59.5 - 120.4	
72	Ge	1179261.40	0.95	1194592.10	98.7	59.5 - 120.4	
74	Ge	848701.56	0.70	836320.19	101.5	59.5 - 120.4	
74	Ge	254656.45	1.52	250887.13	101.5	59.5 - 120.4	
74	Ge	1615063.60	1.52	1631365.00	99.0	59.5 - 120.4	
115	In	3020230.30	2.39	2941832.50	102.7	59.5 - 120.4	
115	In	755874.00	1.92	742519.38	101.8	59.5 - 120.4	
115	In	3837781.30	0.30	3915329.50	98.0	59.5 - 120.4	
159	Tb	5038673.00	1.63	5106562.50	98.7	59.5 - 120.4	
209	Bi	5712742.00	1.74	5653738.00	101.0	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\007CALS.D\007CALS.D#
Date Acquired: Jan 13 2017 06:39 pm
Operator:
Sample Name: Level 5 Std
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:37 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1087212.00	A	49490.00	4.55
9	Be	848150.00	A	16660.00	1.96
11	B	59339.73	P	1416.00	2.39
27	Al	18456850.00	A	303900.00	1.65
45	Sc	1930009.00	A	11930.00	0.62
45	Sc	324449.91	P	12410.00	3.82
45	Sc	5310912.00	A	108700.00	2.05
51	V	859693.38	A	12960.00	1.51
52	Cr	958010.81	A	8540.00	0.89
55	Mn	6240405.00	A	66340.00	1.06
56	Fe	11201510.00	A	25250.00	0.23
59	Co	5204528.00	A	36180.00	0.70
60	Ni	1041651.00	A	11450.00	1.10
63	Cu	2667288.00	A	14390.00	0.54
66	Zn	3599471.00	A	29300.00	0.81
72	Ge	580382.88	P	3994.00	0.69
72	Ge	170183.41	P	4114.00	2.42
72	Ge	1173173.00	A	8370.00	0.71
74	Ge	830249.00	M	11620.00	1.40
74	Ge	249507.20	P	6144.00	2.46
74	Ge	1622593.00	A	22760.00	1.40
75	As	138670.50	P	2925.00	2.11
78	Se	184378.59	P	934.20	0.51
98	Mo	2194215.00	A	17260.00	0.79
99			P		
106	Cd		P		
107	Ag	853587.38	P	2751.00	0.32
108	Cd		P		
111	Cd	702320.88	P	6617.00	0.94
115	In	2971875.00	A	37370.00	1.26
115	In	755549.69	P	22830.00	3.02
115	In	3932465.00	A	44740.00	1.14
118	Sn	2122554.00	A	19970.00	0.94
121	Sb	352435.69	P	874.60	0.25
125	Te	123316.80	P	640.10	0.52
133	Cs	9239147.00	A	24760.00	0.27
137	Ba	3020478.00	A	27640.00	0.92
159	Tb	5132542.00	A	99190.00	1.93
205	Tl	5595780.00	A	7129.00	0.13
206	(Pb)		A		
207	(Pb)		A		
208	Pb	19463540.00	A	103400.00	0.53
209	Bi	5813618.00	A	58880.00	1.01
232	Th	8094482.00	A	47930.00	0.59
238	U	7595952.00	A	29390.00	0.39

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1087211.90	4.55	1119822.60	97.1	59.5 - 120.4	
45	Sc	1930008.90	0.62	1919480.10	100.5	59.5 - 120.4	
45	Sc	324449.91	3.82	323278.19	100.4	59.5 - 120.4	
45	Sc	5310912.00	2.05	5346593.50	99.3	59.5 - 120.4	
72	Ge	580382.94	0.69	593717.44	97.8	59.5 - 120.4	
72	Ge	170183.45	2.42	172904.84	98.4	59.5 - 120.4	
72	Ge	1173172.90	0.71	1194592.10	98.2	59.5 - 120.4	
74	Ge	830249.00	1.40	836320.19	99.3	59.5 - 120.4	
74	Ge	249507.20	2.46	250887.13	99.4	59.5 - 120.4	
74	Ge	1622593.00	1.40	1631365.00	99.5	59.5 - 120.4	
115	In	2971875.00	1.26	2941832.50	101.0	59.5 - 120.4	
115	In	755549.75	3.02	742519.38	101.8	59.5 - 120.4	
115	In	3932465.00	1.14	3915329.50	100.4	59.5 - 120.4	
159	Tb	5132542.00	1.93	5106562.50	100.5	59.5 - 120.4	
209	Bi	5813618.00	1.01	5653738.00	102.8	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Initial Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\008_QCS.D\008_QCS.D#
Date Acquired: Jan 13 2017 06:42 pm
Operator:
Sample Name: ICV
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: QCS
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	46.530	1.70	50.00	93.1	89 - 110	
11 B	6	3	20.940	2.53	20.00	104.7	89 - 110	
27 Al	72	3	107.700	2.47	100.00	107.7	89 - 110	
51 V	45	2	50.580	1.70	50.00	101.2	89 - 110	
52 Cr	45	2	51.570	1.48	50.00	103.1	89 - 110	
55 Mn	72	3	52.470	1.63	50.00	104.9	89 - 110	
56 Fe	45	1	106.700	1.55	100.00	106.7	89 - 110	
59 Co	72	3	53.900	2.17	50.00	107.8	89 - 110	
60 Ni	45	2	50.230	2.28	50.00	100.5	89 - 110	
63 Cu	45	2	51.790	2.41	50.00	103.6	89 - 110	
66 Zn	72	3	50.480	1.59	50.00	101.0	89 - 110	
75 As	45	2	51.720	2.02	50.00	103.4	89 - 110	
78 Se	45	1	52.300	0.80	50.00	104.6	89 - 110	
98 Mo	115	3	19.640	0.71	20.00	98.2	89 - 110	
107 Ag	115	3	20.620	0.83	20.00	103.1	89 - 110	
111 Cd	115	3	52.100	0.77	50.00	104.2	89 - 110	
118 Sn	115	3	50.700	0.82	50.00	101.4	89 - 110	
121 Sb	115	3	22.580	0.44	20.00	112.9	89 - 110	Fail
125 Te	115	3	52.350	0.08	50.00	104.7	89 - 110	
133 Cs	115	3	52.690	0.71	50.00	105.4	89 - 110	
137 Ba	115	3	50.350	0.60	50.00	100.7	89 - 110	
205 Tl	209	3	56.450	0.36	50.00	112.9	89 - 110	Fail
208 Pb	209	3	54.190	0.26	50.00	108.4	89 - 110	
232 Th	209	3	52.330	0.72	50.00	104.7	89 - 110	
238 U	209	3	53.930	0.57	50.00	107.9	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1098542	2.73	1119823	98.1	60 - 120	
45 Sc	1	1955840	0.67	1919480	101.9	60 - 120	
45 Sc	2	326641	2.40	323278	101.0	60 - 120	
45 Sc	3	5356730	0.66	5346594	100.2	60 - 120	
72 Ge	1	588966	0.36	593717	99.2	60 - 120	
72 Ge	2	169861	1.18	172905	98.2	60 - 120	
72 Ge	3	1179393	1.58	1194592	98.7	60 - 120	
74 Ge	1	842918	0.28	836320	100.8	60 - 120	
74 Ge	2	250929	1.78	250887	100.0	60 - 120	
74 Ge	3	1604708	0.70	1631365	98.4	60 - 120	
115 In	1	2987350	0.55	2941833	101.5	60 - 120	
115 In	2	750370	1.83	742519	101.1	60 - 120	
115 In	3	3930744	0.07	3915330	100.4	60 - 120	
159 Tb	3	5142450	0.63	5106563	100.7	60 - 120	
209 Bi	3	5653405	0.88	5653738	100.0	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\009_CCB.D\009_CCB.D#
Date Acquired: Jan 13 2017 06:45 pm
Operator:
Sample Name: ICB
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.076 ppb	14.80	0.150	
11 B	6	3	-1.171 ppb	12.57	1.500	
27 Al	72	3	0.095 ppb	24.78	3.000	
51 V	45	2	0.009 ppb	275.52	0.600	
52 Cr	45	2	0.043 ppb	24.53	1.500	
55 Mn	72	3	0.055 ppb	4.39	1.500	
56 Fe	45	1	0.119 ppb	20.90	12.000	
59 Co	72	3	0.027 ppb	3.84	0.150	
60 Ni	45	2	0.041 ppb	34.32	1.800	
63 Cu	45	2	-0.130 ppb	24.99	1.500	
66 Zn	72	3	0.080 ppb	31.76	6.000	
75 As	45	2	0.062 ppb	36.36	0.600	
78 Se	45	1	0.087 ppb	17.26	0.300	
98 Mo	115	3	0.025 ppb	6.52	1.500	
107 Ag	115	3	0.012 ppb	30.68	0.150	
111 Cd	115	3	0.022 ppb	52.35	0.300	
118 Sn	115	3	0.042 ppb	23.07	0.300	
121 Sb	115	3	0.196 ppb	10.37	1.200	
125 Te	115	3	0.064 ppb	42.81	3.000	
133 Cs	115	3	0.034 ppb	6.70	0.600	
137 Ba	115	3	0.049 ppb	15.55	1.500	
205 Tl	209	3	0.044 ppb	8.86	0.300	
208 Pb	209	3	0.050 ppb	4.34	0.300	
232 Th	209	3	0.275 ppb	4.13	3.000	
238 U	209	3	0.026 ppb	12.55	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1084182	1.23	1119823	96.8	60 - 120	
45 Sc	1	1935805	1.06	1919480	100.9	60 - 120	
45 Sc	2	318836	1.47	323278	98.6	60 - 120	
45 Sc	3	5108284	0.44	5346594	95.5	60 - 120	
72 Ge	1	587147	0.67	593717	98.9	60 - 120	
72 Ge	2	167304	0.55	172905	96.8	60 - 120	
72 Ge	3	1140469	0.12	1194592	95.5	60 - 120	
74 Ge	1	835357	1.29	836320	99.9	60 - 120	
74 Ge	2	247125	0.88	250887	98.5	60 - 120	
74 Ge	3	1563575	0.73	1631365	95.8	60 - 120	
115 In	1	2950862	1.43	2941833	100.3	60 - 120	
115 In	2	736570	1.94	742519	99.2	60 - 120	
115 In	3	3732798	0.71	3915330	95.3	60 - 120	
159 Tb	3	4868582	1.86	5106563	95.3	60 - 120	
209 Bi	3	5390376	1.66	5653738	95.3	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\010_CCB.D\010_CCB.D#
Date Acquired: Jan 13 2017 06:48 pm
Operator:
Sample Name: ICSA
Misc Info:
Vial Number: 4510
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.047 ppb	27.06	0.150	
11 B	6	3	0.105 ppb	178.67	1.500	
27 Al	72	3	44390.000 ppb	0.22	3.000	Fail
51 V	45	2	-0.102 ppb	21.81	0.600	
52 Cr	45	2	0.240 ppb	10.40	1.500	
55 Mn	72	3	0.508 ppb	0.62	1.500	
56 Fe	45	1	44260.000 ppb	0.78	12.000	Fail
59 Co	72	3	0.191 ppb	5.69	0.150	Fail
60 Ni	45	2	0.127 ppb	9.65	1.800	
63 Cu	45	2	-0.220 ppb	42.73	1.500	
66 Zn	72	3	0.558 ppb	3.94	6.000	
75 As	45	2	0.177 ppb	0.60	0.600	
78 Se	45	1	0.040 ppb	41.81	0.300	
98 Mo	115	3	916.600 ppb	1.08	1.500	Fail
107 Ag	115	3	0.055 ppb	7.28	0.150	
111 Cd	115	3	0.042 ppb	17.80	0.300	
118 Sn	115	3	-0.186 ppb	6.30	0.300	
121 Sb	115	3	0.213 ppb	4.12	1.200	
125 Te	115	3	0.017 ppb	92.60	3.000	
133 Cs	115	3	0.027 ppb	4.93	0.600	
137 Ba	115	3	0.588 ppb	6.10	1.500	
205 Tl	209	3	0.014 ppb	22.53	0.300	
208 Pb	209	3	0.058 ppb	4.56	0.300	
232 Th	209	3	0.360 ppb	1.80	3.000	
238 U	209	3	0.010 ppb	3.42	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	953117	0.67	1119823	85.1	60 - 120	
45 Sc	1	1791280	1.49	1919480	93.3	60 - 120	
45 Sc	2	304452	2.14	323278	94.2	60 - 120	
45 Sc	3	5044231	1.24	5346594	94.3	60 - 120	
72 Ge	1	548963	1.40	593717	92.5	60 - 120	
72 Ge	2	161054	2.56	172905	93.1	60 - 120	
72 Ge	3	1130625	0.71	1194592	94.6	60 - 120	
74 Ge	1	783872	1.06	836320	93.7	60 - 120	
74 Ge	2	237456	2.23	250887	94.6	60 - 120	
74 Ge	3	1513484	0.99	1631365	92.8	60 - 120	
115 In	1	2701364	1.55	2941833	91.8	60 - 120	
115 In	2	679014	2.56	742519	91.4	60 - 120	
115 In	3	3555206	0.42	3915330	90.8	60 - 120	
159 Tb	3	4837265	0.74	5106563	94.7	60 - 120	
209 Bi	3	5061714	0.25	5653738	89.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\011SMPL.D\011SMPL.D#
Date Acquired: Jan 13 2017 06:51 pm
Acq. Method: ACZ.M
Operator:
Sample Name: ICSAB
Misc Info:
Vial Number: 4511
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	17.820	17.820	ppb	0.99	200.00	
11 B	6	3	10.270	10.270	ppb	2.81	20.00	
27 Al	72	3	45,380.000	45380.000	ppb	0.89	1000.00	OCAL
51 V	45	2	19.310	19.310	ppb	2.88	200.00	
52 Cr	45	2	18.730	18.730	ppb	3.46	200.00	
55 Mn	72	3	18.820	18.820	ppb	0.41	200.00	
56 Fe	45	1	44,680.000	44680.000	ppb	1.79	1000.00	OCAL
59 Co	72	3	17.890	17.890	ppb	0.90	200.00	
60 Ni	45	2	17.980	17.980	ppb	3.16	500.00	
63 Cu	45	2	17.240	17.240	ppb	2.82	500.00	
66 Zn	72	3	19.460	19.460	ppb	0.64	1000.00	
75 As	45	2	20.180	20.180	ppb	3.13	200.00	
78 Se	45	1	19.220	19.220	ppb	2.29	500.00	
98 Mo	115	3	964.300	964.300	ppb	0.90	200.00	OCAL
107 Ag	115	3	8.647	8.647	ppb	0.94	50.00	
111 Cd	115	3	19.110	19.110	ppb	0.40	200.00	
118 Sn	115	3	18.940	18.940	ppb	0.19	200.00	
121 Sb	115	3	10.110	10.110	ppb	0.73	25.00	
125 Te	115	3	19.470	19.470	ppb	1.06	200.00	
133 Cs	115	3	19.790	19.790	ppb	0.51	200.00	
137 Ba	115	3	20.120	20.120	ppb	1.29	500.00	
205 Tl	209	3	19.980	19.980	ppb	0.67	200.00	
208 Pb	209	3	19.520	19.520	ppb	1.53	500.00	
232 Th	209	3	49.320	49.320	ppb	2.22	200.00	
238 U	209	3	20.370	20.370	ppb	1.56	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	918372	1.40	1119823	82.0	59.5 - 120	
45 Sc	1	1804444	2.10	1919480	94.0	59.5 - 120	
45 Sc	2	304188	3.42	323278	94.1	59.5 - 120	
45 Sc	3	4971016	1.52	5346594	93.0	59.5 - 120	
72 Ge	1	550399	1.18	593717	92.7	59.5 - 120	
72 Ge	2	161016	2.38	172905	93.1	59.5 - 120	
72 Ge	3	1115572	0.52	1194592	93.4	59.5 - 120	
74 Ge	1	787676	1.28	836320	94.2	59.5 - 120	
74 Ge	2	237406	2.43	250887	94.6	59.5 - 120	
74 Ge	3	1502049	1.70	1631365	92.1	59.5 - 120	
115 In	1	2689780	1.79	2941833	91.4	59.5 - 120	
115 In	2	679182	2.72	742519	91.5	59.5 - 120	
115 In	3	3473488	0.71	3915330	88.7	59.5 - 120	
159 Tb	3	4670566	1.62	5106563	91.5	59.5 - 120	
209 Bi	3	4912620	2.02	5653738	86.9	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\012_CCB.D\012_CCB.D#
Date Acquired: Jan 13 2017 06:54 pm
Operator:
Sample Name: wash
Misc Info:
Vial Number: 4512
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.033 ppb	23.91	0.150	
11 B	6	3	-1.658 ppb	16.73	1.500	
27 Al	72	3	14.210 ppb	6.97	3.000	Fail
51 V	45	2	-0.173 ppb	6.22	0.600	
52 Cr	45	2	-0.014 ppb	14.43	1.500	
55 Mn	72	3	-0.124 ppb	17.73	1.500	
56 Fe	45	1	25.020 ppb	9.91	12.000	Fail
59 Co	72	3	0.004 ppb	42.39	0.150	
60 Ni	45	2	-0.060 ppb	2.24	1.800	
63 Cu	45	2	-0.704 ppb	1.72	1.500	
66 Zn	72	3	-0.687 ppb	1.15	6.000	
75 As	45	2	-0.012 ppb	91.22	0.600	
78 Se	45	1	-0.029 ppb	17.94	0.300	
98 Mo	115	3	0.438 ppb	6.16	1.500	
107 Ag	115	3	-0.008 ppb	24.79	0.150	
111 Cd	115	3	0.004 ppb	103.09	0.300	
118 Sn	115	3	-0.571 ppb	0.94	0.300	
121 Sb	115	3	-0.026 ppb	11.22	1.200	
125 Te	115	3	0.004 ppb	228.63	3.000	
133 Cs	115	3	-0.002 ppb	54.15	0.600	
137 Ba	115	3	-0.031 ppb	2.32	1.500	
205 Tl	209	3	0.013 ppb	9.79	0.300	
208 Pb	209	3	-0.012 ppb	6.82	0.300	
232 Th	209	3	-0.003 ppb	32.89	3.000	
238 U	209	3	-0.004 ppb	36.70	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1007314	3.44	1119823	90.0	60 - 120	
45 Sc	1	1832153	4.03	1919480	95.5	60 - 120	
45 Sc	2	311021	1.13	323278	96.2	60 - 120	
45 Sc	3	5070591	1.44	5346594	94.8	60 - 120	
72 Ge	1	581898	2.43	593717	98.0	60 - 120	
72 Ge	2	169202	0.51	172905	97.9	60 - 120	
72 Ge	3	1143106	0.93	1194592	95.7	60 - 120	
74 Ge	1	819168	2.47	836320	97.9	60 - 120	
74 Ge	2	247848	0.89	250887	98.8	60 - 120	
74 Ge	3	1558482	0.26	1631365	95.5	60 - 120	
115 In	1	2853074	3.55	2941833	97.0	60 - 120	
115 In	2	727054	1.15	742519	97.9	60 - 120	
115 In	3	3680154	1.08	3915330	94.0	60 - 120	
159 Tb	3	4805027	0.36	5106563	94.1	60 - 120	
209 Bi	3	5322139	0.60	5653738	94.1	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\013SMPL.D\013SMPL.D#
Date Acquired: Jan 13 2017 06:58 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG415792PBS
Misc Info:
Vial Number: 4101
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	9.685	0.019	ppb	49.14	200.00	
11 B	6	3	-77.500	-0.155	ppb	87.81	20.00	
27 Al	72	3	2,228.000	4.456	ppb	1.15	1000.00	
51 V	45	2	233.850	0.468	ppb	14.97	200.00	
52 Cr	45	2	37.805	0.076	ppb	12.73	200.00	
55 Mn	72	3	68.150	0.136	ppb	8.38	200.00	
56 Fe	45	1	3,080.500	6.161	ppb	9.86	1000.00	
59 Co	72	3	0.096	0.000	ppb	914.94	200.00	
60 Ni	45	2	-8.345	-0.017	ppb	73.16	500.00	
63 Cu	45	2	232.100	0.464	ppb	9.87	500.00	
66 Zn	72	3	-143.900	-0.288	ppb	28.36	1000.00	
75 As	45	2	60.450	0.121	ppb	24.24	200.00	
78 Se	45	1	25.415	0.051	ppb	25.77	500.00	
98 Mo	115	3	56.800	0.114	ppb	2.88	200.00	
107 Ag	115	3	-4.747	-0.009	ppb	12.67	50.00	
111 Cd	115	3	-0.576	-0.001	ppb	476.13	200.00	
118 Sn	115	3	3,661.500	7.323	ppb	0.44	200.00	
121 Sb	115	3	29.730	0.059	ppb	15.39	25.00	
125 Te	115	3	3.791	0.008	ppb	408.47	200.00	
133 Cs	115	3	-1.869	-0.004	ppb	25.73	200.00	
137 Ba	115	3	5.985	0.012	ppb	29.27	500.00	
205 Tl	209	3	0.273	0.001	ppb	149.94	200.00	
208 Pb	209	3	5.975	0.012	ppb	9.67	500.00	
232 Th	209	3	-12.230	-0.024	ppb	17.42	200.00	
238 U	209	3	-4.464	-0.009	ppb	7.09	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	965474	0.75	1119823	86.2	59.5 - 120	
45 Sc	1	1817531	2.16	1919480	94.7	59.5 - 120	
45 Sc	2	308446	2.14	323278	95.4	59.5 - 120	
45 Sc	3	5113750	1.14	5346594	95.6	59.5 - 120	
72 Ge	1	569298	1.63	593717	95.9	59.5 - 120	
72 Ge	2	162780	1.14	172905	94.1	59.5 - 120	
72 Ge	3	1145875	0.53	1194592	95.9	59.5 - 120	
74 Ge	1	804763	1.01	836320	96.2	59.5 - 120	
74 Ge	2	238928	0.97	250887	95.2	59.5 - 120	
74 Ge	3	1549949	0.77	1631365	95.0	59.5 - 120	
115 In	1	2844767	1.44	2941833	96.7	59.5 - 120	
115 In	2	708839	2.19	742519	95.5	59.5 - 120	
115 In	3	3694984	0.85	3915330	94.4	59.5 - 120	
159 Tb	3	4833053	1.45	5106563	94.6	59.5 - 120	
209 Bi	3	5372232	0.97	5653738	95.0	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\014SMPL.D\014SMPL.D#
Date Acquired: Jan 13 2017 07:01 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG415792LCSS1
Misc Info:
Vial Number: 4102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 5000.00
Autodil Factor: Undiluted
Final Dil Factor: 5000.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	82,800.000	16.560	ppb	1.20	200.00	
11 B	6	3	##########	23.310	ppb	2.04	20.00	OCAL
27 Al	72	3	##########	1542.000	ppb	1.03	1000.00	OCAL
51 V	45	2	##########	21.480	ppb	4.87	200.00	
52 Cr	45	2	##########	26.400	ppb	5.42	200.00	
55 Mn	72	3	##########	67.490	ppb	0.48	200.00	
56 Fe	45	1	##########	2805.000	ppb	2.94	1000.00	OCAL
59 Co	72	3	##########	28.420	ppb	0.93	200.00	
60 Ni	45	2	##########	23.540	ppb	5.34	500.00	
63 Cu	45	2	##########	31.710	ppb	4.59	500.00	
66 Zn	72	3	##########	35.460	ppb	1.27	1000.00	
75 As	45	2	##########	27.390	ppb	5.11	200.00	
78 Se	45	1	##########	33.040	ppb	2.86	500.00	
98 Mo	115	3	##########	21.080	ppb	0.07	200.00	
107 Ag	115	3	28,980.000	5.796	ppb	0.60	50.00	
111 Cd	115	3	82,100.000	16.420	ppb	1.72	200.00	
118 Sn	115	3	##########	26.930	ppb	0.75	200.00	
121 Sb	115	3	74,200.000	14.840	ppb	0.59	25.00	
125 Te	115	3	22.760	0.005	ppb	617.53	200.00	
133 Cs	115	3	1,373.500	0.275	ppb	3.14	200.00	
137 Ba	115	3	##########	37.410	ppb	0.52	500.00	
205 Tl	209	3	##########	28.190	ppb	1.17	200.00	
208 Pb	209	3	##########	27.930	ppb	0.87	500.00	
232 Th	209	3	17,100.000	3.420	ppb	1.55	200.00	
238 U	209	3	15,875.000	3.175	ppb	1.08	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	987465	1.96	1119823	88.2	59.5 - 120	
45 Sc	1	1862431	2.69	1919480	97.0	59.5 - 120	
45 Sc	2	308045	5.28	323278	95.3	59.5 - 120	
45 Sc	3	5116175	1.59	5346594	95.7	59.5 - 120	
72 Ge	1	573040	1.22	593717	96.5	59.5 - 120	
72 Ge	2	165812	3.27	172905	95.9	59.5 - 120	
72 Ge	3	1135634	0.66	1194592	95.1	59.5 - 120	
74 Ge	1	820540	1.99	836320	98.1	59.5 - 120	
74 Ge	2	244111	2.83	250887	97.3	59.5 - 120	
74 Ge	3	1549671	0.50	1631365	95.0	59.5 - 120	
115 In	1	2867184	3.33	2941833	97.5	59.5 - 120	
115 In	2	710213	4.44	742519	95.6	59.5 - 120	
115 In	3	3656930	1.03	3915330	93.4	59.5 - 120	
159 Tb	3	4686684	2.21	5106563	91.8	59.5 - 120	
209 Bi	3	5211824	1.82	5653738	92.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

3 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\015SMPL.D\015SMPL.D#
Date Acquired: Jan 13 2017 07:04 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG415792LCSSD1
Misc Info:
Vial Number: 4103
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 5000.00
Autodil Factor: Undiluted
Final Dil Factor: 5000.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	82,750.000	16.550	ppb	0.31	200.00	
11 B	6	3	##########	23.080	ppb	1.41	20.00	OCAL
27 Al	72	3	##########	1554.000	ppb	0.96	1000.00	OCAL
51 V	45	2	##########	21.340	ppb	2.16	200.00	
52 Cr	45	2	##########	26.290	ppb	0.49	200.00	
55 Mn	72	3	##########	58.800	ppb	0.55	200.00	
56 Fe	45	1	##########	2878.000	ppb	1.13	1000.00	OCAL
59 Co	72	3	##########	28.160	ppb	1.28	200.00	
60 Ni	45	2	##########	22.980	ppb	1.29	500.00	
63 Cu	45	2	##########	31.360	ppb	1.98	500.00	
66 Zn	72	3	##########	35.510	ppb	1.65	1000.00	
75 As	45	2	##########	26.960	ppb	4.74	200.00	
78 Se	45	1	##########	32.960	ppb	1.51	500.00	
98 Mo	115	3	##########	21.130	ppb	1.42	200.00	
107 Ag	115	3	28,945.000	5.789	ppb	0.93	50.00	
111 Cd	115	3	80,800.000	16.160	ppb	1.75	200.00	
118 Sn	115	3	##########	26.850	ppb	1.46	200.00	
121 Sb	115	3	75,500.000	15.100	ppb	0.99	25.00	
125 Te	115	3	13.030	0.003	ppb	1916.30	200.00	
133 Cs	115	3	1,350.500	0.270	ppb	3.46	200.00	
137 Ba	115	3	##########	37.930	ppb	0.89	500.00	
205 Tl	209	3	##########	27.670	ppb	2.05	200.00	
208 Pb	209	3	##########	27.730	ppb	1.67	500.00	
232 Th	209	3	17,835.000	3.567	ppb	0.98	200.00	
238 U	209	3	15,925.000	3.185	ppb	0.93	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1013193	1.12	1119823	90.5	59.5 - 120	
45 Sc	1	1880870	1.44	1919480	98.0	59.5 - 120	
45 Sc	2	315560	0.36	323278	97.6	59.5 - 120	
45 Sc	3	5187340	1.56	5346594	97.0	59.5 - 120	
72 Ge	1	577188	0.79	593717	97.2	59.5 - 120	
72 Ge	2	168249	0.61	172905	97.3	59.5 - 120	
72 Ge	3	1151772	0.91	1194592	96.4	59.5 - 120	
74 Ge	1	820477	1.39	836320	98.1	59.5 - 120	
74 Ge	2	247514	0.83	250887	98.7	59.5 - 120	
74 Ge	3	1568713	1.14	1631365	96.2	59.5 - 120	
115 In	1	2903945	1.92	2941833	98.7	59.5 - 120	
115 In	2	735546	1.08	742519	99.1	59.5 - 120	
115 In	3	3674814	1.62	3915330	93.9	59.5 - 120	
159 Tb	3	4729141	0.62	5106563	92.6	59.5 - 120	
209 Bi	3	5272134	1.65	5653738	93.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\016SMPL.D\016SMPL.D#
Date Acquired: Jan 13 2017 07:07 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-02
Misc Info:
Vial Number: 4104
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,152.600	2.260	ppb	2.76	200.00	
11 B	6	3	19,655.400	38.540	ppb	1.23	20.00	OCAL
27 Al	72	3	##########	48770.000	ppb	1.15	1000.00	OCAL
51 V	45	2	32,079.000	62.900	ppb	1.97	200.00	
52 Cr	45	2	28,024.500	54.950	ppb	1.68	200.00	
55 Mn	72	3	##########	9782.000	ppb	0.69	200.00	OCAL
56 Fe	45	1	##########	62880.000	ppb	2.40	1000.00	OCAL
59 Co	72	3	17,472.600	34.260	ppb	0.67	200.00	
60 Ni	45	2	33,354.000	65.400	ppb	2.10	500.00	
63 Cu	45	2	23,944.500	46.950	ppb	2.98	500.00	
66 Zn	72	3	##########	1078.000	ppb	0.67	1000.00	OCAL
75 As	45	2	5,921.100	11.610	ppb	4.09	200.00	
78 Se	45	1	218.382	0.428	ppb	8.21	500.00	
98 Mo	115	3	2,538.780	4.978	ppb	0.98	200.00	
107 Ag	115	3	59.211	0.116	ppb	6.99	50.00	
111 Cd	115	3	707.880	1.388	ppb	1.77	200.00	
118 Sn	115	3	4,451.790	8.729	ppb	0.84	200.00	
121 Sb	115	3	145.707	0.286	ppb	1.10	25.00	
125 Te	115	3	35.180	0.069	ppb	10.06	200.00	
133 Cs	115	3	3,455.250	6.775	ppb	0.37	200.00	
137 Ba	115	3	##########	425.300	ppb	1.04	500.00	
205 Tl	209	3	235.161	0.461	ppb	1.93	200.00	
208 Pb	209	3	22,139.100	43.410	ppb	0.23	500.00	
232 Th	209	3	6,721.800	13.180	ppb	0.20	200.00	
238 U	209	3	638.520	1.252	ppb	1.47	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	992145	2.97	1119823	88.6	59.5 - 120	
45 Sc	1	1986096	2.93	1919480	103.5	59.5 - 120	
45 Sc	2	327795	2.27	323278	101.4	59.5 - 120	
45 Sc	3	5528411	1.86	5346594	103.4	59.5 - 120	
72 Ge	1	561578	1.91	593717	94.6	59.5 - 120	
72 Ge	2	160402	1.66	172905	92.8	59.5 - 120	
72 Ge	3	1156270	0.94	1194592	96.8	59.5 - 120	
74 Ge	1	797721	2.25	836320	95.4	59.5 - 120	
74 Ge	2	233157	2.00	250887	92.9	59.5 - 120	
74 Ge	3	1519089	0.53	1631365	93.1	59.5 - 120	
115 In	1	2787164	3.17	2941833	94.7	59.5 - 120	
115 In	2	682469	1.27	742519	91.9	59.5 - 120	
115 In	3	3534073	0.26	3915330	90.3	59.5 - 120	
159 Tb	3	4780339	0.34	5106563	93.6	59.5 - 120	
209 Bi	3	5063322	0.61	5653738	89.6	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\017SMPL.D\017SMPL.D#
Date Acquired: Jan 13 2017 07:11 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-04
Misc Info:
Vial Number: 4105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,063.350	2.085	ppb	1.33	200.00	
11 B	6	3	8,007.000	15.700	ppb	0.83	20.00	
27 Al	72	3	##########	47680.000	ppb	1.16	1000.00	OCAL
51 V	45	2	37,454.400	73.440	ppb	2.42	200.00	
52 Cr	45	2	32,237.100	63.210	ppb	2.57	200.00	
55 Mn	72	3	##########	1617.000	ppb	0.81	200.00	OCAL
56 Fe	45	1	##########	40090.000	ppb	1.47	1000.00	OCAL
59 Co	72	3	9,047.400	17.740	ppb	1.43	200.00	
60 Ni	45	2	33,246.900	65.190	ppb	2.52	500.00	
63 Cu	45	2	21,960.600	43.060	ppb	2.99	500.00	
66 Zn	72	3	##########	1852.000	ppb	1.51	1000.00	OCAL
75 As	45	2	7,420.500	14.550	ppb	3.19	200.00	
78 Se	45	1	738.990	1.449	ppb	1.87	500.00	
98 Mo	115	3	5,599.800	10.980	ppb	1.76	200.00	
107 Ag	115	3	99.348	0.195	ppb	2.87	50.00	
111 Cd	115	3	1,942.590	3.809	ppb	1.57	200.00	
118 Sn	115	3	4,707.810	9.231	ppb	2.24	200.00	
121 Sb	115	3	198.543	0.389	ppb	4.44	25.00	
125 Te	115	3	25.153	0.049	ppb	98.80	200.00	
133 Cs	115	3	3,221.670	6.317	ppb	1.65	200.00	
137 Ba	115	3	##########	337.000	ppb	2.23	500.00	
205 Tl	209	3	311.712	0.611	ppb	1.83	200.00	
208 Pb	209	3	14,305.500	28.050	ppb	1.18	500.00	
232 Th	209	3	8,042.700	15.770	ppb	1.72	200.00	
238 U	209	3	2,806.530	5.503	ppb	1.78	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	965004	3.08	1119823	86.2	59.5 - 120	
45 Sc	1	1959505	1.30	1919480	102.1	59.5 - 120	
45 Sc	2	327520	1.64	323278	101.3	59.5 - 120	
45 Sc	3	5428510	2.51	5346594	101.5	59.5 - 120	
72 Ge	1	557106	0.77	593717	93.8	59.5 - 120	
72 Ge	2	161947	0.98	172905	93.7	59.5 - 120	
72 Ge	3	1140047	1.75	1194592	95.4	59.5 - 120	
74 Ge	1	797897	1.31	836320	95.4	59.5 - 120	
74 Ge	2	235591	0.77	250887	93.9	59.5 - 120	
74 Ge	3	1534917	2.16	1631365	94.1	59.5 - 120	
115 In	1	2774819	1.11	2941833	94.3	59.5 - 120	
115 In	2	691854	2.10	742519	93.2	59.5 - 120	
115 In	3	3602893	1.94	3915330	92.0	59.5 - 120	
159 Tb	3	4821006	1.52	5106563	94.4	59.5 - 120	
209 Bi	3	5179569	0.90	5653738	91.6	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\018SMPL.D\018SMPL.D#
Date Acquired: Jan 13 2017 07:14 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-07
Misc Info:
Vial Number: 4106
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,060.800	2.080	ppb	2.11	200.00	
11 B	6	3	18,099.900	35.490	ppb	1.31	20.00	OCAL
27 Al	72	3	##########	39320.000	ppb	0.93	1000.00	OCAL
51 V	45	2	47,139.300	92.430	ppb	1.91	200.00	
52 Cr	45	2	33,150.000	65.000	ppb	1.31	200.00	
55 Mn	72	3	##########	7413.000	ppb	1.21	200.00	OCAL
56 Fe	45	1	##########	51020.000	ppb	2.00	1000.00	OCAL
59 Co	72	3	15,182.700	29.770	ppb	1.14	200.00	
60 Ni	45	2	35,664.300	69.930	ppb	1.49	500.00	
63 Cu	45	2	28,090.800	55.080	ppb	1.46	500.00	
66 Zn	72	3	##########	582.300	ppb	0.81	1000.00	
75 As	45	2	6,533.100	12.810	ppb	2.05	200.00	
78 Se	45	1	675.750	1.325	ppb	2.76	500.00	
98 Mo	115	3	1,993.080	3.908	ppb	0.21	200.00	
107 Ag	115	3	164.832	0.323	ppb	3.35	50.00	
111 Cd	115	3	3,144.660	6.166	ppb	1.87	200.00	
118 Sn	115	3	4,310.010	8.451	ppb	0.66	200.00	
121 Sb	115	3	201.807	0.396	ppb	2.23	25.00	
125 Te	115	3	19.696	0.039	ppb	7.03	200.00	
133 Cs	115	3	2,972.790	5.829	ppb	0.34	200.00	
137 Ba	115	3	##########	451.100	ppb	0.80	500.00	
205 Tl	209	3	257.193	0.504	ppb	1.22	200.00	
208 Pb	209	3	19,364.700	37.970	ppb	1.55	500.00	
232 Th	209	3	6,354.600	12.460	ppb	1.84	200.00	
238 U	209	3	3,649.050	7.155	ppb	2.94	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	950779	2.91	1119823	84.9	59.5 - 120	
45 Sc	1	1963470	1.31	1919480	102.3	59.5 - 120	
45 Sc	2	322708	2.00	323278	99.8	59.5 - 120	
45 Sc	3	5423269	0.48	5346594	101.4	59.5 - 120	
72 Ge	1	558154	0.52	593717	94.0	59.5 - 120	
72 Ge	2	160202	0.61	172905	92.7	59.5 - 120	
72 Ge	3	1151061	0.72	1194592	96.4	59.5 - 120	
74 Ge	1	799345	0.57	836320	95.6	59.5 - 120	
74 Ge	2	234732	0.82	250887	93.6	59.5 - 120	
74 Ge	3	1537029	0.90	1631365	94.2	59.5 - 120	
115 In	1	2792462	1.70	2941833	94.9	59.5 - 120	
115 In	2	681159	1.44	742519	91.7	59.5 - 120	
115 In	3	3583739	0.59	3915330	91.5	59.5 - 120	
159 Tb	3	4923831	1.11	5106563	96.4	59.5 - 120	
209 Bi	3	5096402	2.27	5653738	90.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\019SMPL.D\019SMPL.D#
Date Acquired: Jan 13 2017 07:17 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-07MS
Misc Info:
Vial Number: 4107
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	25,403.100	49.810	ppb	0.63	200.00	
11 B	6	3	23,460.000	46.000	ppb	1.54	20.00	OCAL
27 Al	72	3	##########	37580.000	ppb	1.87	1000.00	OCAL
51 V	45	2	69,870.000	137.000	ppb	1.28	200.00	
52 Cr	45	2	56,151.000	110.100	ppb	0.93	200.00	
55 Mn	72	3	##########	6554.000	ppb	0.07	200.00	OCAL
56 Fe	45	1	##########	52960.000	ppb	2.76	1000.00	OCAL
59 Co	72	3	38,209.200	74.920	ppb	0.16	200.00	
60 Ni	45	2	59,364.000	116.400	ppb	1.28	500.00	
63 Cu	45	2	50,377.800	98.780	ppb	0.65	500.00	
66 Zn	72	3	##########	653.700	ppb	0.44	1000.00	
75 As	45	2	30,513.300	59.830	ppb	1.13	200.00	
78 Se	45	1	13,056.000	25.600	ppb	2.66	500.00	
98 Mo	115	3	25,423.500	49.850	ppb	0.41	200.00	
107 Ag	115	3	5,009.220	9.822	ppb	0.90	50.00	
111 Cd	115	3	27,744.000	54.400	ppb	0.10	200.00	
118 Sn	115	3	21,736.200	42.620	ppb	0.56	200.00	
121 Sb	115	3	1,018.980	1.998	ppb	0.86	25.00	
125 Te	115	3	11,934.000	23.400	ppb	1.37	200.00	
133 Cs	115	3	14,642.100	28.710	ppb	0.85	200.00	
137 Ba	115	3	##########	443.100	ppb	1.40	500.00	
205 Tl	209	3	26,479.200	51.920	ppb	0.32	200.00	
208 Pb	209	3	43,441.800	85.180	ppb	0.23	500.00	
232 Th	209	3	16,269.000	31.900	ppb	0.70	200.00	
238 U	209	3	16,743.300	32.830	ppb	1.97	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	940658	1.54	1119823	84.0	59.5 - 120	
45 Sc	1	1924914	2.23	1919480	100.3	59.5 - 120	
45 Sc	2	319416	1.18	323278	98.8	59.5 - 120	
45 Sc	3	5427882	0.40	5346594	101.5	59.5 - 120	
72 Ge	1	547318	1.65	593717	92.2	59.5 - 120	
72 Ge	2	160504	0.97	172905	92.8	59.5 - 120	
72 Ge	3	1156517	0.42	1194592	96.8	59.5 - 120	
74 Ge	1	776867	1.59	836320	92.9	59.5 - 120	
74 Ge	2	232267	0.99	250887	92.6	59.5 - 120	
74 Ge	3	1540614	0.95	1631365	94.4	59.5 - 120	
115 In	1	2741663	2.16	2941833	93.2	59.5 - 120	
115 In	2	688372	1.23	742519	92.7	59.5 - 120	
115 In	3	3617190	0.62	3915330	92.4	59.5 - 120	
159 Tb	3	4972493	0.64	5106563	97.4	59.5 - 120	
209 Bi	3	5272934	1.69	5653738	93.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\020SMPL.D\020SMPL.D#
Date Acquired: Jan 13 2017 07:20 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-07MSD
Misc Info:
Vial Number: 4108
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	25,520.400	50.040	ppb	0.40	200.00	
11 B	6	3	23,817.000	46.700	ppb	1.56	20.00	OCAL
27 Al	72	3	##########	38200.000	ppb	0.50	1000.00	OCAL
51 V	45	2	69,870.000	137.000	ppb	1.77	200.00	
52 Cr	45	2	56,967.000	111.700	ppb	2.06	200.00	
55 Mn	72	3	##########	7079.000	ppb	0.56	200.00	OCAL
56 Fe	45	1	##########	49810.000	ppb	3.02	1000.00	OCAL
59 Co	72	3	39,310.800	77.080	ppb	0.03	200.00	
60 Ni	45	2	57,834.000	113.400	ppb	2.14	500.00	
63 Cu	45	2	49,087.500	96.250	ppb	2.76	500.00	
66 Zn	72	3	##########	686.700	ppb	0.40	1000.00	
75 As	45	2	30,396.000	59.600	ppb	3.13	200.00	
78 Se	45	1	12,127.800	23.780	ppb	2.60	500.00	
98 Mo	115	3	26,061.000	51.100	ppb	0.67	200.00	
107 Ag	115	3	5,041.860	9.886	ppb	1.06	50.00	
111 Cd	115	3	28,213.200	55.320	ppb	0.43	200.00	
118 Sn	115	3	21,680.100	42.510	ppb	0.49	200.00	
121 Sb	115	3	1,014.900	1.990	ppb	1.50	25.00	
125 Te	115	3	12,153.300	23.830	ppb	1.16	200.00	
133 Cs	115	3	14,708.400	28.840	ppb	0.70	200.00	
137 Ba	115	3	##########	495.000	ppb	0.16	500.00	
205 Tl	209	3	26,734.200	52.420	ppb	1.26	200.00	
208 Pb	209	3	44,364.900	86.990	ppb	0.43	500.00	
232 Th	209	3	16,702.500	32.750	ppb	1.04	200.00	
238 U	209	3	16,967.700	33.270	ppb	0.07	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	917206	1.09	1119823	81.9	59.5 - 120	
45 Sc	1	1951997	2.56	1919480	101.7	59.5 - 120	
45 Sc	2	321661	2.64	323278	99.5	59.5 - 120	
45 Sc	3	5328580	0.35	5346594	99.7	59.5 - 120	
72 Ge	1	551496	2.15	593717	92.9	59.5 - 120	
72 Ge	2	161087	2.85	172905	93.2	59.5 - 120	
72 Ge	3	1137603	0.29	1194592	95.2	59.5 - 120	
74 Ge	1	790020	1.89	836320	94.5	59.5 - 120	
74 Ge	2	231283	2.57	250887	92.2	59.5 - 120	
74 Ge	3	1520537	1.29	1631365	93.2	59.5 - 120	
115 In	1	2775569	1.98	2941833	94.3	59.5 - 120	
115 In	2	679405	2.40	742519	91.5	59.5 - 120	
115 In	3	3561453	1.29	3915330	91.0	59.5 - 120	
159 Tb	3	4918746	1.59	5106563	96.3	59.5 - 120	
209 Bi	3	5210335	2.01	5653738	92.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\021_CCV.D\021_CCV.D#
Date Acquired: Jan 13 2017 07:23 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	90.100	1.55	100.00	90.1	89 - 110	
11 B	6	3	8.828	3.08	10.00	88.3	89 - 110	Fail
27 Al	72	3	477.500	1.11	500.00	95.5	89 - 110	
51 V	45	2	97.140	1.24	100.00	97.1	89 - 110	
52 Cr	45	2	95.690	1.87	100.00	95.7	89 - 110	
55 Mn	72	3	98.010	0.86	100.00	98.0	89 - 110	
56 Fe	45	1	556.300	4.80	500.00	111.3	89 - 110	Fail
59 Co	72	3	95.500	0.39	100.00	95.5	89 - 110	
60 Ni	45	2	240.200	1.87	250.00	96.1	89 - 110	
63 Cu	45	2	246.400	1.65	250.00	98.6	89 - 110	
66 Zn	72	3	474.700	0.62	500.00	94.9	89 - 110	
75 As	45	2	96.460	0.61	100.00	96.5	89 - 110	
78 Se	45	1	257.400	5.33	250.00	103.0	89 - 110	
98 Mo	115	3	96.370	1.26	100.00	96.4	89 - 110	
107 Ag	115	3	23.640	0.76	25.00	94.6	89 - 110	
111 Cd	115	3	94.340	1.26	100.00	94.3	89 - 110	
118 Sn	115	3	94.170	0.94	100.00	94.2	89 - 110	
121 Sb	115	3	11.700	1.38	12.50	93.6	89 - 110	
125 Te	115	3	94.490	1.24	100.00	94.5	89 - 110	
133 Cs	115	3	96.730	1.66	100.00	96.7	89 - 110	
137 Ba	115	3	245.500	1.04	250.00	98.2	89 - 110	
205 Tl	209	3	98.330	0.42	100.00	98.3	89 - 110	
208 Pb	209	3	241.700	1.01	250.00	96.7	89 - 110	
232 Th	209	3	96.130	2.07	100.00	96.1	89 - 110	
238 U	209	3	96.880	0.75	100.00	96.9	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	956356	3.03	1119823	85.4	60 - 120	
45 Sc	1	1687443	5.00	1919480	87.9	60 - 120	
45 Sc	2	301567	1.70	323278	93.3	60 - 120	
45 Sc	3	4969074	1.72	5346594	92.9	60 - 120	
72 Ge	1	536398	2.53	593717	90.3	60 - 120	
72 Ge	2	162064	0.26	172905	93.7	60 - 120	
72 Ge	3	1121913	0.37	1194592	93.9	60 - 120	
74 Ge	1	770987	2.50	836320	92.2	60 - 120	
74 Ge	2	239080	1.03	250887	95.3	60 - 120	
74 Ge	3	1552659	0.49	1631365	95.2	60 - 120	
115 In	1	2668897	2.75	2941833	90.7	60 - 120	
115 In	2	712123	1.00	742519	95.9	60 - 120	
115 In	3	3681922	0.75	3915330	94.0	60 - 120	
159 Tb	3	4888631	0.96	5106563	95.7	60 - 120	
209 Bi	3	5389310	0.32	5653738	95.3	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\022_CCB.D\022_CCB.D#
Date Acquired: Jan 13 2017 07:26 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.087 ppb	10.63	0.150	
11 B	6	3	-1.283 ppb	4.18	1.500	
27 Al	72	3	2.085 ppb	3.73	3.000	
51 V	45	2	0.174 ppb	13.19	0.600	
52 Cr	45	2	0.045 ppb	9.74	1.500	
55 Mn	72	3	0.444 ppb	6.84	1.500	
56 Fe	45	1	10.770 ppb	45.26	12.000	
59 Co	72	3	0.034 ppb	10.63	0.150	
60 Ni	45	2	0.108 ppb	10.11	1.800	
63 Cu	45	2	-0.262 ppb	6.53	1.500	
66 Zn	72	3	0.190 ppb	19.95	6.000	
75 As	45	2	0.038 ppb	99.22	0.600	
78 Se	45	1	0.203 ppb	53.69	0.300	
98 Mo	115	3	0.039 ppb	15.02	1.500	
107 Ag	115	3	0.006 ppb	16.30	0.150	
111 Cd	115	3	0.032 ppb	9.06	0.300	
118 Sn	115	3	-0.043 ppb	58.53	0.300	
121 Sb	115	3	0.169 ppb	10.37	1.200	
125 Te	115	3	0.042 ppb	40.26	3.000	
133 Cs	115	3	0.032 ppb	7.44	0.600	
137 Ba	115	3	0.094 ppb	9.35	1.500	
205 Tl	209	3	0.040 ppb	7.07	0.300	
208 Pb	209	3	0.076 ppb	9.64	0.300	
232 Th	209	3	0.124 ppb	3.54	3.000	
238 U	209	3	0.023 ppb	3.46	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	966627	1.70	1119823	86.3	60 - 120	
45 Sc	1	1719155	7.74	1919480	89.6	60 - 120	
45 Sc	2	292786	1.51	323278	90.6	60 - 120	
45 Sc	3	5014072	0.73	5346594	93.8	60 - 120	
72 Ge	1	534703	6.10	593717	90.1	60 - 120	
72 Ge	2	157887	1.16	172905	91.3	60 - 120	
72 Ge	3	1127253	0.97	1194592	94.4	60 - 120	
74 Ge	1	758149	6.21	836320	90.7	60 - 120	
74 Ge	2	231276	1.16	250887	92.2	60 - 120	
74 Ge	3	1551305	0.48	1631365	95.1	60 - 120	
115 In	1	2696802	6.84	2941833	91.7	60 - 120	
115 In	2	682201	1.31	742519	91.9	60 - 120	
115 In	3	3717496	1.17	3915330	94.9	60 - 120	
159 Tb	3	4814449	1.40	5106563	94.3	60 - 120	
209 Bi	3	5315025	0.60	5653738	94.0	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\023SMPL.D\023SMPL.D#
Date Acquired: Jan 13 2017 07:30 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-11
Misc Info:
Vial Number: 4109
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,286.220	2.522	ppb	1.15	200.00	
11 B	6	3	15,386.700	30.170	ppb	0.80	20.00	OCAL
27 Al	72	3	##########	48450.000	ppb	0.73	1000.00	OCAL
51 V	45	2	32,905.200	64.520	ppb	1.16	200.00	
52 Cr	45	2	26,331.300	51.630	ppb	1.22	200.00	
55 Mn	72	3	##########	7485.000	ppb	1.34	200.00	OCAL
56 Fe	45	1	##########	60870.000	ppb	1.96	1000.00	OCAL
59 Co	72	3	17,992.800	35.280	ppb	0.84	200.00	
60 Ni	45	2	29,743.200	58.320	ppb	0.78	500.00	
63 Cu	45	2	24,225.000	47.500	ppb	1.78	500.00	
66 Zn	72	3	98,481.000	193.100	ppb	0.44	1000.00	
75 As	45	2	6,420.900	12.590	ppb	2.19	200.00	
78 Se	45	1	204.204	0.400	ppb	6.27	500.00	
98 Mo	115	3	641.070	1.257	ppb	1.06	200.00	
107 Ag	115	3	37.592	0.074	ppb	5.74	50.00	
111 Cd	115	3	502.044	0.984	ppb	3.63	200.00	
118 Sn	115	3	4,124.880	8.088	ppb	1.27	200.00	
121 Sb	115	3	188.700	0.370	ppb	3.94	25.00	
125 Te	115	3	26.785	0.053	ppb	22.77	200.00	
133 Cs	115	3	4,110.600	8.060	ppb	0.38	200.00	
137 Ba	115	3	##########	478.400	ppb	1.01	500.00	
205 Tl	209	3	181.407	0.356	ppb	0.92	200.00	
208 Pb	209	3	37,668.600	73.860	ppb	0.56	500.00	
232 Th	209	3	6,410.700	12.570	ppb	0.80	200.00	
238 U	209	3	790.500	1.550	ppb	1.51	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	968257	1.85	1119823	86.5	59.5 - 120	
45 Sc	1	1979515	1.40	1919480	103.1	59.5 - 120	
45 Sc	2	325818	1.93	323278	100.8	59.5 - 120	
45 Sc	3	5588183	1.20	5346594	104.5	59.5 - 120	
72 Ge	1	546820	1.29	593717	92.1	59.5 - 120	
72 Ge	2	159335	0.89	172905	92.2	59.5 - 120	
72 Ge	3	1154140	0.52	1194592	96.6	59.5 - 120	
74 Ge	1	782828	0.39	836320	93.6	59.5 - 120	
74 Ge	2	233511	1.66	250887	93.1	59.5 - 120	
74 Ge	3	1532221	0.67	1631365	93.9	59.5 - 120	
115 In	1	2752967	1.24	2941833	93.6	59.5 - 120	
115 In	2	682851	1.51	742519	92.0	59.5 - 120	
115 In	3	3587985	0.37	3915330	91.6	59.5 - 120	
159 Tb	3	4937531	0.85	5106563	96.7	59.5 - 120	
209 Bi	3	5151138	0.49	5653738	91.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\024SMPL.D\024SMPL.D#
Date Acquired: Jan 13 2017 07:33 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-12
Misc Info:
Vial Number: 4110
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,307.130	2.563	ppb	3.51	200.00	
11 B	6	3	15,616.200	30.620	ppb	2.72	20.00	OCAL
27 Al	72	3	##########	25550.000	ppb	0.45	1000.00	OCAL
51 V	45	2	53,499.000	104.900	ppb	2.34	200.00	
52 Cr	45	2	23,103.000	45.300	ppb	2.87	200.00	
55 Mn	72	3	##########	7402.000	ppb	0.21	200.00	OCAL
56 Fe	45	1	##########	66550.000	ppb	0.95	1000.00	OCAL
59 Co	72	3	18,288.600	35.860	ppb	0.28	200.00	
60 Ni	45	2	54,009.000	105.900	ppb	2.32	500.00	
63 Cu	45	2	46,200.900	90.590	ppb	2.30	500.00	
66 Zn	72	3	##########	342.300	ppb	0.88	1000.00	
75 As	45	2	14,443.200	28.320	ppb	2.12	200.00	
78 Se	45	1	496.893	0.974	ppb	3.79	500.00	
98 Mo	115	3	2,160.870	4.237	ppb	2.91	200.00	
107 Ag	115	3	226.848	0.445	ppb	1.22	50.00	
111 Cd	115	3	5,961.900	11.690	ppb	0.58	200.00	
118 Sn	115	3	3,784.710	7.421	ppb	1.15	200.00	
121 Sb	115	3	363.069	0.712	ppb	1.39	25.00	
125 Te	115	3	30.651	0.060	ppb	92.30	200.00	
133 Cs	115	3	2,670.870	5.237	ppb	1.19	200.00	
137 Ba	115	3	##########	506.500	ppb	1.03	500.00	OCAL
205 Tl	209	3	288.201	0.565	ppb	0.34	200.00	
208 Pb	209	3	31,186.500	61.150	ppb	0.45	500.00	
232 Th	209	3	6,308.700	12.370	ppb	0.58	200.00	
238 U	209	3	3,009.510	5.901	ppb	0.53	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	946710	2.99	1119823	84.5	59.5 - 120	
45 Sc	1	1990937	1.07	1919480	103.7	59.5 - 120	
45 Sc	2	325188	2.49	323278	100.6	59.5 - 120	
45 Sc	3	5568543	0.21	5346594	104.2	59.5 - 120	
72 Ge	1	551704	1.02	593717	92.9	59.5 - 120	
72 Ge	2	159763	1.92	172905	92.4	59.5 - 120	
72 Ge	3	1145383	0.31	1194592	95.9	59.5 - 120	
74 Ge	1	787124	1.11	836320	94.1	59.5 - 120	
74 Ge	2	231758	2.05	250887	92.4	59.5 - 120	
74 Ge	3	1526297	0.49	1631365	93.6	59.5 - 120	
115 In	1	2779964	0.35	2941833	94.5	59.5 - 120	
115 In	2	690018	3.40	742519	92.9	59.5 - 120	
115 In	3	3652248	1.40	3915330	93.3	59.5 - 120	
159 Tb	3	5004658	0.53	5106563	98.0	59.5 - 120	
209 Bi	3	5277452	1.31	5653738	93.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\025SMPL.D\025SMPL.D#
Date Acquired: Jan 13 2017 07:36 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-13
Misc Info:
Vial Number: 4111
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,068.580	2.116	ppb	3.19	200.00	
11 B	6	3	19,977.800	39.560	ppb	1.36	20.00	OCAL
27 Al	72	3	##########	32760.000	ppb	1.95	1000.00	OCAL
51 V	45	2	26,330.700	52.140	ppb	1.68	200.00	
52 Cr	45	2	25,396.450	50.290	ppb	1.39	200.00	
55 Mn	72	3	##########	4236.000	ppb	1.67	200.00	OCAL
56 Fe	45	1	##########	47060.000	ppb	1.64	1000.00	OCAL
59 Co	72	3	12,438.150	24.630	ppb	0.99	200.00	
60 Ni	45	2	26,416.550	52.310	ppb	1.61	500.00	
63 Cu	45	2	29,391.000	58.200	ppb	2.57	500.00	
66 Zn	72	3	##########	239.000	ppb	1.28	1000.00	
75 As	45	2	6,241.800	12.360	ppb	2.92	200.00	
78 Se	45	1	534.795	1.059	ppb	2.54	500.00	
98 Mo	115	3	1,037.775	2.055	ppb	2.17	200.00	
107 Ag	115	3	206.899	0.410	ppb	2.63	50.00	
111 Cd	115	3	1,197.355	2.371	ppb	1.88	200.00	
118 Sn	115	3	3,700.640	7.328	ppb	0.31	200.00	
121 Sb	115	3	155.035	0.307	ppb	5.88	25.00	
125 Te	115	3	41.264	0.082	ppb	21.00	200.00	
133 Cs	115	3	2,905.265	5.753	ppb	0.33	200.00	
137 Ba	115	3	52,267.500	103.500	ppb	0.51	500.00	
205 Tl	209	3	198.162	0.392	ppb	0.90	200.00	
208 Pb	209	3	23,795.600	47.120	ppb	0.92	500.00	
232 Th	209	3	4,383.905	8.681	ppb	1.02	200.00	
238 U	209	3	1,663.470	3.294	ppb	0.80	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	927321	1.89	1119823	82.8	59.5 - 120	
45 Sc	1	1893333	1.44	1919480	98.6	59.5 - 120	
45 Sc	2	313602	2.46	323278	97.0	59.5 - 120	
45 Sc	3	5295099	0.39	5346594	99.0	59.5 - 120	
72 Ge	1	537846	0.74	593717	90.6	59.5 - 120	
72 Ge	2	155868	1.96	172905	90.1	59.5 - 120	
72 Ge	3	1113273	0.96	1194592	93.2	59.5 - 120	
74 Ge	1	768168	0.90	836320	91.9	59.5 - 120	
74 Ge	2	226991	0.66	250887	90.5	59.5 - 120	
74 Ge	3	1496491	0.24	1631365	91.7	59.5 - 120	
115 In	1	2717379	1.73	2941833	92.4	59.5 - 120	
115 In	2	667350	1.81	742519	89.9	59.5 - 120	
115 In	3	3563447	0.79	3915330	91.0	59.5 - 120	
159 Tb	3	4936322	1.49	5106563	96.7	59.5 - 120	
209 Bi	3	5148883	2.38	5653738	91.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\026SMPL.D\026SMPL.D#
Date Acquired: Jan 13 2017 07:39 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34674-13SDL
Misc Info:
Vial Number: 4112
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	212.201	0.420	ppb	1.88	200.00	
11 B	6	3	3,246.645	6.429	ppb	3.98	20.00	
27 Al	72	3	##########	6582.000	ppb	1.10	1000.00	OCAL
51 V	45	2	5,489.350	10.870	ppb	2.75	200.00	
52 Cr	45	2	5,448.950	10.790	ppb	2.83	200.00	
55 Mn	72	3	##########	850.500	ppb	0.83	200.00	OCAL
56 Fe	45	1	##########	10240.000	ppb	0.52	1000.00	OCAL
59 Co	72	3	2,492.680	4.936	ppb	0.89	200.00	
60 Ni	45	2	5,716.600	11.320	ppb	2.11	500.00	
63 Cu	45	2	6,110.500	12.100	ppb	2.28	500.00	
66 Zn	72	3	24,335.950	48.190	ppb	1.25	1000.00	
75 As	45	2	1,359.965	2.693	ppb	5.45	200.00	
78 Se	45	1	102.970	0.204	ppb	9.19	500.00	
98 Mo	115	3	198.516	0.393	ppb	0.94	200.00	
107 Ag	115	3	35.158	0.070	ppb	1.99	50.00	
111 Cd	115	3	240.885	0.477	ppb	2.08	200.00	
118 Sn	115	3	442.431	0.876	ppb	0.73	200.00	
121 Sb	115	3	-0.071	0.000	ppb	2013.40	25.00	
125 Te	115	3	7.222	0.014	ppb	69.76	200.00	
133 Cs	115	3	568.125	1.125	ppb	0.84	200.00	
137 Ba	115	3	10,286.850	20.370	ppb	1.65	500.00	
205 Tl	209	3	37.764	0.075	ppb	4.57	200.00	
208 Pb	209	3	4,713.165	9.333	ppb	0.67	500.00	
232 Th	209	3	814.060	1.612	ppb	1.04	200.00	
238 U	209	3	321.786	0.637	ppb	1.54	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	947792	2.95	1119823	84.6	59.5 - 120	
45 Sc	1	1840529	0.61	1919480	95.9	59.5 - 120	
45 Sc	2	305390	2.62	323278	94.5	59.5 - 120	
45 Sc	3	5059765	0.89	5346594	94.6	59.5 - 120	
72 Ge	1	560972	0.85	593717	94.5	59.5 - 120	
72 Ge	2	161467	1.98	172905	93.4	59.5 - 120	
72 Ge	3	1137935	1.11	1194592	95.3	59.5 - 120	
74 Ge	1	802475	1.08	836320	96.0	59.5 - 120	
74 Ge	2	237921	0.65	250887	94.8	59.5 - 120	
74 Ge	3	1552134	0.87	1631365	95.1	59.5 - 120	
115 In	1	2795212	1.54	2941833	95.0	59.5 - 120	
115 In	2	705440	2.98	742519	95.0	59.5 - 120	
115 In	3	3658884	0.42	3915330	93.5	59.5 - 120	
159 Tb	3	4811939	0.91	5106563	94.2	59.5 - 120	
209 Bi	3	5220485	1.12	5653738	92.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\027SMPL.D\027SMPL.D#
Date Acquired: Jan 13 2017 07:42 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG416146PBS
Misc Info:
Vial Number: 4201
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	4.604	0.009	ppb	101.27	200.00	
11 B	6	3	-298.000	-0.596	ppb	28.62	20.00	
27 Al	72	3	1,338.500	2.677	ppb	2.37	1000.00	
51 V	45	2	300.800	0.602	ppb	13.02	200.00	
52 Cr	45	2	45.650	0.091	ppb	10.06	200.00	
55 Mn	72	3	345.000	0.690	ppb	4.31	200.00	
56 Fe	45	1	6,920.000	13.840	ppb	15.01	1000.00	
59 Co	72	3	-1.536	-0.003	ppb	13.14	200.00	
60 Ni	45	2	-6.145	-0.012	ppb	27.58	500.00	
63 Cu	45	2	-45.610	-0.091	ppb	21.31	500.00	
66 Zn	72	3	1,170.000	2.340	ppb	21.00	1000.00	
75 As	45	2	46.875	0.094	ppb	40.81	200.00	
78 Se	45	1	-2.973	-0.006	ppb	105.11	500.00	
98 Mo	115	3	3.321	0.007	ppb	41.67	200.00	
107 Ag	115	3	-4.967	-0.010	ppb	9.93	50.00	
111 Cd	115	3	-1.950	-0.004	ppb	127.54	200.00	
118 Sn	115	3	3,649.500	7.299	ppb	1.08	200.00	
121 Sb	115	3	-6.020	-0.012	ppb	48.00	25.00	
125 Te	115	3	-10.030	-0.020	ppb	130.61	200.00	
133 Cs	115	3	-5.080	-0.010	ppb	8.50	200.00	
137 Ba	115	3	-4.413	-0.009	ppb	78.45	500.00	
205 Tl	209	3	-2.036	-0.004	ppb	49.79	200.00	
208 Pb	209	3	18.565	0.037	ppb	8.92	500.00	
232 Th	209	3	-23.400	-0.047	ppb	1.69	200.00	
238 U	209	3	-5.645	-0.011	ppb	7.14	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	898004	1.57	1119823	80.2	59.5 - 120	
45 Sc	1	1758442	2.08	1919480	91.6	59.5 - 120	
45 Sc	2	289724	1.57	323278	89.6	59.5 - 120	
45 Sc	3	4933704	0.55	5346594	92.3	59.5 - 120	
72 Ge	1	550019	1.16	593717	92.6	59.5 - 120	
72 Ge	2	155985	0.52	172905	90.2	59.5 - 120	
72 Ge	3	1114561	1.00	1194592	93.3	59.5 - 120	
74 Ge	1	776670	0.74	836320	92.9	59.5 - 120	
74 Ge	2	229130	0.34	250887	91.3	59.5 - 120	
74 Ge	3	1528780	0.29	1631365	93.7	59.5 - 120	
115 In	1	2776836	0.73	2941833	94.4	59.5 - 120	
115 In	2	689894	1.27	742519	92.9	59.5 - 120	
115 In	3	3706293	0.43	3915330	94.7	59.5 - 120	
159 Tb	3	4895516	0.47	5106563	95.9	59.5 - 120	
209 Bi	3	5393494	0.52	5653738	95.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\028SMPL.D\028SMPL.D#
Date Acquired: Jan 13 2017 07:46 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG416146LCSS1
Misc Info:
Vial Number: 4202
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 5000.00
Autodil Factor: Undiluted
Final Dil Factor: 5000.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	85,250.000	17.050	ppb	2.06	200.00	
11 B	6	3	##########	24.390	ppb	1.25	20.00	OCAL
27 Al	72	3	##########	1587.000	ppb	0.54	1000.00	OCAL
51 V	45	2	##########	21.800	ppb	1.97	200.00	
52 Cr	45	2	##########	27.120	ppb	2.56	200.00	
55 Mn	72	3	##########	58.690	ppb	1.23	200.00	
56 Fe	45	1	##########	2781.000	ppb	2.39	1000.00	OCAL
59 Co	72	3	##########	29.300	ppb	1.32	200.00	
60 Ni	45	2	##########	24.340	ppb	2.94	500.00	
63 Cu	45	2	##########	32.460	ppb	2.87	500.00	
66 Zn	72	3	##########	35.990	ppb	1.20	1000.00	
75 As	45	2	##########	28.050	ppb	2.24	200.00	
78 Se	45	1	##########	34.490	ppb	2.29	500.00	
98 Mo	115	3	##########	22.280	ppb	1.80	200.00	
107 Ag	115	3	29,745.000	5.949	ppb	2.61	50.00	
111 Cd	115	3	83,050.000	16.610	ppb	0.95	200.00	
118 Sn	115	3	##########	28.560	ppb	1.86	200.00	
121 Sb	115	3	92,900.000	18.580	ppb	2.39	25.00	
125 Te	115	3	-15.175	-0.003	ppb	552.22	200.00	
133 Cs	115	3	1,451.500	0.290	ppb	3.22	200.00	
137 Ba	115	3	##########	44.550	ppb	2.20	500.00	
205 Tl	209	3	##########	28.640	ppb	0.83	200.00	
208 Pb	209	3	##########	29.780	ppb	1.14	500.00	
232 Th	209	3	17,850.000	3.570	ppb	1.95	200.00	
238 U	209	3	17,305.000	3.461	ppb	0.22	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	947225	3.37	1119823	84.6	59.5 - 120	
45 Sc	1	1822815	2.06	1919480	95.0	59.5 - 120	
45 Sc	2	301946	2.62	323278	93.4	59.5 - 120	
45 Sc	3	4964015	2.03	5346594	92.8	59.5 - 120	
72 Ge	1	565402	1.08	593717	95.2	59.5 - 120	
72 Ge	2	160870	2.14	172905	93.0	59.5 - 120	
72 Ge	3	1128353	0.87	1194592	94.5	59.5 - 120	
74 Ge	1	803741	1.44	836320	96.1	59.5 - 120	
74 Ge	2	237737	0.57	250887	94.8	59.5 - 120	
74 Ge	3	1535320	1.70	1631365	94.1	59.5 - 120	
115 In	1	2809748	2.13	2941833	95.5	59.5 - 120	
115 In	2	708872	1.57	742519	95.5	59.5 - 120	
115 In	3	3650517	1.41	3915330	93.2	59.5 - 120	
159 Tb	3	4756375	0.18	5106563	93.1	59.5 - 120	
209 Bi	3	5265359	0.95	5653738	93.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\029SMPL.D\029SMPL.D#
Date Acquired: Jan 13 2017 07:49 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG416146LCSSD1
Misc Info:
Vial Number: 4203
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 5000.00
Autodil Factor: Undiluted
Final Dil Factor: 5000.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	82,400.000	16.480	ppb	3.24	200.00	
11 B	6	3	##########	23.450	ppb	2.29	20.00	OCAL
27 Al	72	3	##########	1535.000	ppb	0.51	1000.00	OCAL
51 V	45	2	##########	22.440	ppb	2.18	200.00	
52 Cr	45	2	##########	27.720	ppb	1.94	200.00	
55 Mn	72	3	##########	57.030	ppb	1.14	200.00	
56 Fe	45	1	##########	2752.000	ppb	1.37	1000.00	OCAL
59 Co	72	3	##########	28.620	ppb	1.33	200.00	
60 Ni	45	2	##########	24.900	ppb	1.06	500.00	
63 Cu	45	2	##########	32.770	ppb	0.65	500.00	
66 Zn	72	3	##########	34.890	ppb	0.92	1000.00	
75 As	45	2	##########	29.070	ppb	2.30	200.00	
78 Se	45	1	##########	33.400	ppb	0.90	500.00	
98 Mo	115	3	##########	21.460	ppb	1.91	200.00	
107 Ag	115	3	28,475.000	5.695	ppb	1.71	50.00	
111 Cd	115	3	80,050.000	16.010	ppb	1.27	200.00	
118 Sn	115	3	##########	28.300	ppb	1.58	200.00	
121 Sb	115	3	92,050.000	18.410	ppb	2.75	25.00	
125 Te	115	3	48.560	0.010	ppb	340.09	200.00	
133 Cs	115	3	1,392.500	0.279	ppb	3.31	200.00	
137 Ba	115	3	##########	38.220	ppb	1.71	500.00	
205 Tl	209	3	##########	28.270	ppb	1.89	200.00	
208 Pb	209	3	##########	28.240	ppb	1.95	500.00	
232 Th	209	3	19,030.000	3.806	ppb	2.22	200.00	
238 U	209	3	16,350.000	3.270	ppb	2.48	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	970271	3.62	1119823	86.6	59.5 - 120	
45 Sc	1	1822575	2.20	1919480	95.0	59.5 - 120	
45 Sc	2	288812	0.76	323278	89.3	59.5 - 120	
45 Sc	3	5053508	2.50	5346594	94.5	59.5 - 120	
72 Ge	1	563380	0.82	593717	94.9	59.5 - 120	
72 Ge	2	157210	1.53	172905	90.9	59.5 - 120	
72 Ge	3	1130183	0.68	1194592	94.6	59.5 - 120	
74 Ge	1	801287	1.13	836320	95.8	59.5 - 120	
74 Ge	2	230570	0.45	250887	91.9	59.5 - 120	
74 Ge	3	1545571	0.96	1631365	94.7	59.5 - 120	
115 In	1	2816578	1.61	2941833	95.7	59.5 - 120	
115 In	2	679167	0.89	742519	91.5	59.5 - 120	
115 In	3	3677165	1.09	3915330	93.9	59.5 - 120	
159 Tb	3	4807164	0.37	5106563	94.1	59.5 - 120	
209 Bi	3	5316374	0.32	5653738	94.0	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\030SMPL.D\030SMPL.D#
Date Acquired: Jan 13 2017 07:52 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34635-03
Misc Info:
Vial Number: 4204
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 565.00
Autodil Factor: Undiluted
Final Dil Factor: 565.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	3,130.100	5.540	ppb	1.03	200.00	
11 B	6	3	##########	431.200	ppb	1.36	20.00	OCAL
27 Al	72	3	##########	42130.000	ppb	0.83	1000.00	OCAL
51 V	45	2	71,359.500	126.300	ppb	1.46	200.00	
52 Cr	45	2	##########	2944.000	ppb	1.29	200.00	OCAL
55 Mn	72	3	##########	1967.000	ppb	0.54	200.00	OCAL
56 Fe	45	1	----	--------	ppb	--------	1000.00	OCAL
59 Co	72	3	##########	348.100	ppb	0.81	200.00	OCAL
60 Ni	45	2	##########	3199.000	ppb	2.37	500.00	OCAL
63 Cu	45	2	49,697.400	87.960	ppb	2.07	500.00	
66 Zn	72	3	##########	19660.000	ppb	0.84	1000.00	OCAL
75 As	45	2	##########	3565.000	ppb	2.15	200.00	OCAL
78 Se	45	1	325.101	0.575	ppb	8.68	500.00	
98 Mo	115	3	2,850.425	5.045	ppb	1.46	200.00	
107 Ag	115	3	540.762	0.957	ppb	2.08	50.00	
111 Cd	115	3	27,521.150	48.710	ppb	1.07	200.00	
118 Sn	115	3	37,606.400	66.560	ppb	1.53	200.00	
121 Sb	115	3	24,091.600	42.640	ppb	1.49	25.00	OCAL
125 Te	115	3	105.938	0.188	ppb	19.39	200.00	
133 Cs	115	3	18,125.200	32.080	ppb	1.67	200.00	
137 Ba	115	3	##########	1018.000	ppb	2.24	500.00	OCAL
205 Tl	209	3	1,775.230	3.142	ppb	1.49	200.00	
208 Pb	209	3	34,137.300	60.420	ppb	2.69	500.00	
232 Th	209	3	1,919.305	3.397	ppb	1.70	200.00	
238 U	209	3	444.712	0.787	ppb	2.35	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	906083	1.45	1119823	80.9	59.5 - 120	
45 Sc	1	2277077	0.32	1919480	118.6	59.5 - 120	
45 Sc	2	371480	2.31	323278	114.9	59.5 - 120	
45 Sc	3	6234428	0.93	5346594	116.6	59.5 - 120	
72 Ge	1	628272	0.78	593717	105.8	59.5 - 120	
72 Ge	2	178910	1.21	172905	103.5	59.5 - 120	
72 Ge	3	1385901	0.40	1194592	116.0	59.5 - 120	
74 Ge	1	874136	1.26	836320	104.5	59.5 - 120	
74 Ge	2	251924	1.60	250887	100.4	59.5 - 120	
74 Ge	3	1674206	0.05	1631365	102.6	59.5 - 120	
115 In	1	2705369	1.87	2941833	92.0	59.5 - 120	
115 In	2	652431	1.97	742519	87.9	59.5 - 120	
115 In	3	3479669	1.46	3915330	88.9	59.5 - 120	
159 Tb	3	4726094	0.13	5106563	92.5	59.5 - 120	
209 Bi	3	4926045	0.55	5653738	87.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

11 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\031SMPL.D\031SMPL.D#
Date Acquired: Jan 13 2017 07:55 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34635-03MS
Misc Info:
Vial Number: 4205
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 565.00
Autodil Factor: Undiluted
Final Dil Factor: 565.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	29,091.850	51.490	ppb	1.12	200.00	
11 B	6	3	##########	438.400	ppb	1.28	20.00	OCAL
27 Al	72	3	##########	41040.000	ppb	1.68	1000.00	OCAL
51 V	45	2	90,400.000	160.000	ppb	0.70	200.00	
52 Cr	45	2	##########	2864.000	ppb	0.97	200.00	OCAL
55 Mn	72	3	##########	1971.000	ppb	1.15	200.00	OCAL
56 Fe	45	1	----	--------	ppb	--------	1000.00	OCAL
59 Co	72	3	##########	374.800	ppb	1.02	200.00	OCAL
60 Ni	45	2	##########	3101.000	ppb	0.53	500.00	OCAL
63 Cu	45	2	69,382.000	122.800	ppb	0.25	500.00	
66 Zn	72	3	##########	19350.000	ppb	0.19	1000.00	OCAL
75 As	45	2	##########	3467.000	ppb	0.68	200.00	OCAL
78 Se	45	1	10,605.050	18.770	ppb	0.96	500.00	
98 Mo	115	3	29,148.350	51.590	ppb	0.49	200.00	
107 Ag	115	3	5,892.950	10.430	ppb	0.51	50.00	
111 Cd	115	3	52,703.200	93.280	ppb	1.20	200.00	
118 Sn	115	3	53,093.050	93.970	ppb	0.35	200.00	
121 Sb	115	3	23,549.200	41.680	ppb	0.09	25.00	OCAL
125 Te	115	3	13,339.650	23.610	ppb	1.90	200.00	
133 Cs	115	3	30,984.600	54.840	ppb	0.32	200.00	
137 Ba	115	3	##########	1019.000	ppb	1.05	500.00	OCAL
205 Tl	209	3	30,515.650	54.010	ppb	2.53	200.00	
208 Pb	209	3	63,110.500	111.700	ppb	1.17	500.00	
232 Th	209	3	12,170.100	21.540	ppb	1.28	200.00	
238 U	209	3	14,763.450	26.130	ppb	0.74	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	856810	1.00	1119823	76.5	59.5 - 120	
45 Sc	1	2175271	0.60	1919480	113.3	59.5 - 120	
45 Sc	2	360606	0.65	323278	111.5	59.5 - 120	
45 Sc	3	6093173	1.02	5346594	114.0	59.5 - 120	
72 Ge	1	601089	1.79	593717	101.2	59.5 - 120	
72 Ge	2	174850	1.80	172905	101.1	59.5 - 120	
72 Ge	3	1340890	0.70	1194592	112.2	59.5 - 120	
74 Ge	1	826560	0.62	836320	98.8	59.5 - 120	
74 Ge	2	246430	0.34	250887	98.2	59.5 - 120	
74 Ge	3	1649723	0.75	1631365	101.1	59.5 - 120	
115 In	1	2655439	0.59	2941833	90.3	59.5 - 120	
115 In	2	650134	0.64	742519	87.6	59.5 - 120	
115 In	3	3453545	0.90	3915330	88.2	59.5 - 120	
159 Tb	3	4617869	0.89	5106563	90.4	59.5 - 120	
209 Bi	3	4906384	2.44	5653738	86.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

11 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\032SMPL.D\032SMPL.D#
Date Acquired: Jan 13 2017 07:58 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L34635-03MSD
Misc Info:
Vial Number: 4206
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Jan 13 2017 06:40 pm
Sample Type: Sample
Dilution Factor: 565.00
Autodil Factor: Undiluted
Final Dil Factor: 565.00

Data Results:
Analytes: Fail
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	28,589.000	50.600	ppb	0.70	200.00	
11 B	6	3	##########	440.400	ppb	1.07	20.00	OCAL
27 Al	72	3	##########	40140.000	ppb	1.44	1000.00	OCAL
51 V	45	2	90,061.000	159.400	ppb	0.19	200.00	
52 Cr	45	2	##########	2926.000	ppb	0.36	200.00	OCAL
55 Mn	72	3	##########	1938.000	ppb	0.32	200.00	OCAL
56 Fe	45	1	----	--------	ppb	--------	1000.00	OCAL
59 Co	72	3	##########	371.000	ppb	0.35	200.00	OCAL
60 Ni	45	2	##########	3146.000	ppb	1.11	500.00	OCAL
63 Cu	45	2	69,551.500	123.100	ppb	1.17	500.00	
66 Zn	72	3	##########	19010.000	ppb	0.36	1000.00	OCAL
75 As	45	2	##########	3545.000	ppb	0.37	200.00	OCAL
78 Se	45	1	10,548.550	18.670	ppb	1.07	500.00	
98 Mo	115	3	28,131.350	49.790	ppb	0.60	200.00	
107 Ag	115	3	5,612.710	9.934	ppb	0.76	50.00	
111 Cd	115	3	51,522.350	91.190	ppb	0.31	200.00	
118 Sn	115	3	52,714.500	93.300	ppb	1.05	200.00	
121 Sb	115	3	23,775.200	42.080	ppb	0.56	25.00	OCAL
125 Te	115	3	13,141.900	23.260	ppb	1.56	200.00	
133 Cs	115	3	30,560.850	54.090	ppb	0.86	200.00	
137 Ba	115	3	##########	1012.000	ppb	0.82	500.00	OCAL
205 Tl	209	3	30,080.600	53.240	ppb	1.55	200.00	
208 Pb	209	3	61,302.500	108.500	ppb	1.28	500.00	
232 Th	209	3	11,966.700	21.180	ppb	1.42	200.00	
238 U	209	3	14,475.300	25.620	ppb	2.31	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	894756	2.16	1119823	79.9	59.5 - 120	
45 Sc	1	2231352	1.62	1919480	116.2	59.5 - 120	
45 Sc	2	364266	1.96	323278	112.7	59.5 - 120	
45 Sc	3	6482161	0.76	5346594	121.2	59.5 - 120	IS Fail
72 Ge	1	614796	1.55	593717	103.6	59.5 - 120	
72 Ge	2	176464	1.23	172905	102.1	59.5 - 120	
72 Ge	3	1430801	0.82	1194592	119.8	59.5 - 120	
74 Ge	1	838045	0.53	836320	100.2	59.5 - 120	
74 Ge	2	251258	1.50	250887	100.1	59.5 - 120	
74 Ge	3	1737470	1.00	1631365	106.5	59.5 - 120	
115 In	1	2767615	2.02	2941833	94.1	59.5 - 120	
115 In	2	668079	1.75	742519	90.0	59.5 - 120	
115 In	3	3737160	0.29	3915330	95.4	59.5 - 120	
159 Tb	3	5086077	0.52	5106563	99.6	59.5 - 120	
209 Bi	3	5368506	1.17	5653738	95.0	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

11 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\033_CCV.D\033_CCV.D#
Date Acquired: Jan 13 2017 08:01 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	88.220	1.87	100.00	88.2	89 - 110	Fail
11 B	6	3	13.140	6.48	10.00	131.4	89 - 110	Fail
27 Al	72	3	461.700	0.62	500.00	92.3	89 - 110	
51 V	45	2	97.720	1.15	100.00	97.7	89 - 110	
52 Cr	45	2	98.380	1.47	100.00	98.4	89 - 110	
55 Mn	72	3	93.760	1.49	100.00	93.8	89 - 110	
56 Fe	45	1	761.700	3.35	500.00	152.3	89 - 110	Fail
59 Co	72	3	93.210	1.33	100.00	93.2	89 - 110	
60 Ni	45	2	245.800	1.78	250.00	98.3	89 - 110	
63 Cu	45	2	252.500	1.92	250.00	101.0	89 - 110	
66 Zn	72	3	475.700	1.68	500.00	95.1	89 - 110	
75 As	45	2	101.800	1.01	100.00	101.8	89 - 110	
78 Se	45	1	232.800	1.10	250.00	93.1	89 - 110	
98 Mo	115	3	91.620	1.59	100.00	91.6	89 - 110	
107 Ag	115	3	22.920	1.31	25.00	91.7	89 - 110	
111 Cd	115	3	92.610	1.70	100.00	92.6	89 - 110	
118 Sn	115	3	92.520	1.75	100.00	92.5	89 - 110	
121 Sb	115	3	11.710	1.94	12.50	93.7	89 - 110	
125 Te	115	3	93.880	1.41	100.00	93.9	89 - 110	
133 Cs	115	3	96.310	1.51	100.00	96.3	89 - 110	
137 Ba	115	3	243.300	1.72	250.00	97.3	89 - 110	
205 Tl	209	3	96.450	2.31	100.00	96.5	89 - 110	
208 Pb	209	3	239.800	2.09	250.00	95.9	89 - 110	
232 Th	209	3	95.190	1.81	100.00	95.2	89 - 110	
238 U	209	3	95.790	2.31	100.00	95.8	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	908757	3.78	1119823	81.2	60 - 120	
45 Sc	1	1732188	1.38	1919480	90.2	60 - 120	
45 Sc	2	268047	1.62	323278	82.9	60 - 120	
45 Sc	3	4612959	1.92	5346594	86.3	60 - 120	
72 Ge	1	532779	1.53	593717	89.7	60 - 120	
72 Ge	2	146748	0.37	172905	84.9	60 - 120	
72 Ge	3	1068637	1.35	1194592	89.5	60 - 120	
74 Ge	1	764841	1.06	836320	91.5	60 - 120	
74 Ge	2	215721	0.72	250887	86.0	60 - 120	
74 Ge	3	1465817	1.17	1631365	89.9	60 - 120	
115 In	1	2801958	1.84	2941833	95.2	60 - 120	
115 In	2	653574	1.27	742519	88.0	60 - 120	
115 In	3	3700975	0.99	3915330	94.5	60 - 120	
159 Tb	3	5016261	0.42	5106563	98.2	60 - 120	
209 Bi	3	5671992	1.22	5653738	100.3	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

3 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\034_CCB.D\034_CCB.D#
Date Acquired: Jan 13 2017 08:04 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.087 ppb	22.44	0.150	
11 B	6	3	1.154 ppb	11.53	1.500	
27 Al	72	3	3.492 ppb	9.63	3.000	Fail
51 V	45	2	0.038 ppb	44.97	0.600	
52 Cr	45	2	0.391 ppb	3.71	1.500	
55 Mn	72	3	0.082 ppb	25.30	1.500	
56 Fe	45	1	60.220 ppb	7.52	12.000	Fail
59 Co	72	3	0.067 ppb	11.61	0.150	
60 Ni	45	2	0.558 ppb	7.10	1.800	
63 Cu	45	2	-0.325 ppb	3.14	1.500	
66 Zn	72	3	2.058 ppb	9.04	6.000	
75 As	45	2	0.460 ppb	35.76	0.600	
78 Se	45	1	0.151 ppb	14.69	0.300	
98 Mo	115	3	0.043 ppb	15.35	1.500	
107 Ag	115	3	0.012 ppb	12.95	0.150	
111 Cd	115	3	0.045 ppb	4.40	0.300	
118 Sn	115	3	-0.037 ppb	42.33	0.300	
121 Sb	115	3	0.175 ppb	6.29	1.200	
125 Te	115	3	0.058 ppb	46.63	3.000	
133 Cs	115	3	0.041 ppb	14.04	0.600	
137 Ba	115	3	0.150 ppb	8.70	1.500	
205 Tl	209	3	0.056 ppb	4.48	0.300	
208 Pb	209	3	0.113 ppb	13.50	0.300	
232 Th	209	3	0.067 ppb	5.33	3.000	
238 U	209	3	0.032 ppb	11.33	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	901939	1.45	1119823	80.5	60 - 120	
45 Sc	1	1637416	1.77	1919480	85.3	60 - 120	
45 Sc	2	263600	1.40	323278	81.5	60 - 120	
45 Sc	3	4536307	2.07	5346594	84.8	60 - 120	
72 Ge	1	511174	0.97	593717	86.1	60 - 120	
72 Ge	2	144007	1.03	172905	83.3	60 - 120	
72 Ge	3	1046765	1.13	1194592	87.6	60 - 120	
74 Ge	1	732321	0.38	836320	87.6	60 - 120	
74 Ge	2	210253	0.38	250887	83.8	60 - 120	
74 Ge	3	1427764	1.17	1631365	87.5	60 - 120	
115 In	1	2655151	0.65	2941833	90.3	60 - 120	
115 In	2	640577	0.95	742519	86.3	60 - 120	
115 In	3	3558055	1.13	3915330	90.9	60 - 120	
159 Tb	3	4906142	1.36	5106563	96.1	60 - 120	
209 Bi	3	5422042	0.71	5653738	95.9	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\035_CCV.D\035_CCV.D#
Date Acquired: Jan 13 2017 08:07 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	88.710	1.74	100.00	88.7	89 - 110	Fail
11 B	6	3	9.998	1.40	10.00	100.0	89 - 110	
27 Al	72	3	457.700	1.50	500.00	91.5	89 - 110	
51 V	45	2	102.000	5.55	100.00	102.0	89 - 110	
52 Cr	45	2	101.300	5.39	100.00	101.3	89 - 110	
55 Mn	72	3	94.770	2.07	100.00	94.8	89 - 110	
56 Fe	45	1	492.300	1.87	500.00	98.5	89 - 110	
59 Co	72	3	95.180	1.89	100.00	95.2	89 - 110	
60 Ni	45	2	254.000	4.93	250.00	101.6	89 - 110	
63 Cu	45	2	264.400	5.20	250.00	105.8	89 - 110	
66 Zn	72	3	480.100	1.97	500.00	96.0	89 - 110	
75 As	45	2	103.300	4.62	100.00	103.3	89 - 110	
78 Se	45	1	239.900	1.60	250.00	96.0	89 - 110	
98 Mo	115	3	94.350	1.26	100.00	94.4	89 - 110	
107 Ag	115	3	23.320	1.68	25.00	93.3	89 - 110	
111 Cd	115	3	94.770	2.11	100.00	94.8	89 - 110	
118 Sn	115	3	94.730	1.59	100.00	94.7	89 - 110	
121 Sb	115	3	11.980	1.95	12.50	95.8	89 - 110	
125 Te	115	3	96.720	1.59	100.00	96.7	89 - 110	
133 Cs	115	3	98.290	1.33	100.00	98.3	89 - 110	
137 Ba	115	3	250.400	1.53	250.00	100.2	89 - 110	
205 Tl	209	3	98.560	1.54	100.00	98.6	89 - 110	
208 Pb	209	3	244.100	1.28	250.00	97.6	89 - 110	
232 Th	209	3	97.500	2.72	100.00	97.5	89 - 110	
238 U	209	3	98.660	1.37	100.00	98.7	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	898922	2.96	1119823	80.3	60 - 120	
45 Sc	1	1599795	1.48	1919480	83.3	60 - 120	
45 Sc	2	245901	6.86	323278	76.1	60 - 120	
45 Sc	3	4436536	2.86	5346594	83.0	60 - 120	
72 Ge	1	497912	0.53	593717	83.9	60 - 120	
72 Ge	2	130863	11.46	172905	75.7	60 - 120	
72 Ge	3	1022871	1.69	1194592	85.6	60 - 120	
74 Ge	1	717912	0.80	836320	85.8	60 - 120	
74 Ge	2	193971	11.52	250887	77.3	60 - 120	
74 Ge	3	1423081	1.64	1631365	87.2	60 - 120	
115 In	1	2565453	1.42	2941833	87.2	60 - 120	
115 In	2	596828	7.93	742519	80.4	60 - 120	
115 In	3	3532679	1.12	3915330	90.2	60 - 120	
159 Tb	3	4805914	1.44	5106563	94.1	60 - 120	
209 Bi	3	5440627	0.47	5653738	96.2	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

1 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg416190.b\036_CCB.D\036_CCB.D#
Date Acquired: Jan 13 2017 08:10 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Jan 13 2017 06:40 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.095 ppb	9.53	0.150	
11 B	6	3	-0.494 ppb	13.02	1.500	
27 Al	72	3	0.613 ppb	2.33	3.000	
51 V	45	2	0.018 ppb	85.45	0.600	
52 Cr	45	2	0.098 ppb	17.97	1.500	
55 Mn	72	3	-0.039 ppb	36.45	1.500	
56 Fe	45	1	10.560 ppb	2.94	12.000	
59 Co	72	3	0.046 ppb	20.97	0.150	
60 Ni	45	2	0.224 ppb	19.33	1.800	
63 Cu	45	2	-0.378 ppb	6.96	1.500	
66 Zn	72	3	0.731 ppb	5.74	6.000	
75 As	45	2	0.114 ppb	16.61	0.600	
78 Se	45	1	0.163 ppb	13.14	0.300	
98 Mo	115	3	0.038 ppb	1.99	1.500	
107 Ag	115	3	0.007 ppb	27.58	0.150	
111 Cd	115	3	0.033 ppb	28.03	0.300	
118 Sn	115	3	-0.026 ppb	30.42	0.300	
121 Sb	115	3	0.174 ppb	11.76	1.200	
125 Te	115	3	0.048 ppb	78.65	3.000	
133 Cs	115	3	0.042 ppb	18.31	0.600	
137 Ba	115	3	0.093 ppb	5.59	1.500	
205 Tl	209	3	0.059 ppb	6.87	0.300	
208 Pb	209	3	0.110 ppb	12.78	0.300	
232 Th	209	3	0.126 ppb	1.83	3.000	
238 U	209	3	0.033 ppb	10.83	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	905886	1.51	1119823	80.9	60 - 120	
45 Sc	1	1626539	0.97	1919480	84.7	60 - 120	
45 Sc	2	263787	3.82	323278	81.6	60 - 120	
45 Sc	3	4411079	0.91	5346594	82.5	60 - 120	
72 Ge	1	504880	0.74	593717	85.0	60 - 120	
72 Ge	2	142896	2.43	172905	82.6	60 - 120	
72 Ge	3	1026957	0.79	1194592	86.0	60 - 120	
74 Ge	1	716154	0.48	836320	85.6	60 - 120	
74 Ge	2	210335	2.07	250887	83.8	60 - 120	
74 Ge	3	1398873	0.74	1631365	85.7	60 - 120	
115 In	1	2589244	0.63	2941833	88.0	60 - 120	
115 In	2	640860	2.19	742519	86.3	60 - 120	
115 In	3	3505225	0.63	3915330	89.5	60 - 120	
159 Tb	3	4766387	0.46	5106563	93.3	60 - 120	
209 Bi	3	5338544	1.63	5653738	94.4	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg416190.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

ICP 3050

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-T-846
Group ID: MA-G-ICP_-3050
Method Ref: M6010B
SOP Ref: SOPII012

WG416037

ACZ Laboratories, Inc

Instrument ID: ICP7
Analyst: GSS
ACZ Dept: 33
Create Date: 01/11/2017 14:11
Start Date/Time: 1/11/17 2:30P
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	P 30 50	Dilution
1	WG416037ICV	II161203-1			1	✓	1
2	WG416037ICB	NONE			1	✓	1
3	WG416037PQV	II161228-3			1	✓	1
4	WG416037ICSAB	II161206-1			1	✓	1
5	WG415792PBS	NONE			100	✓	100
6	WG415792LCSS1	PCN52516			100	✓	100
7	WG415792LCSSD1	PCN52516			100	✓	100
8	WG415792LCSS2	PCN52708			100	✓	100
9	WG415792LCSSD2	PCN52708			100	✓	100
10	L34674-01	SB-06GT (1.5-10)			102	✓	102
11	L34674-02	SB-07GT (0-4)			102	✓	102
12	L34674-03	SB-09GT (8-12)			102	✓	102
13	WG416037CCV1	II161221-2			1	✓	1
14	WG416037CCB1	NONE			1	✓	1
15	L34674-04	SB-09GT (18-22)			102	✓	102
16	L34674-04SDL	NONE			1	✓	102
17	L34674-05	SB-12GT (0-27)			101	✓	101
18	L34674-06	SB-13AL (0-25)			101	✓	101
19	L34674-07	SB-14AL (0-15)			102	✓	102
20	L34674-08	SB-14AL (15-35)			101	✓	101
21	L34674-09	SB-15AL (0-25)			101	✓	101
22	L34674-10	SB-15AL (25-50)			101	✓	101
23	L34674-14	SB-09GT (8-12-DUPLIC			101	✓	101

Not needed. SP 1-12-17

MS + MSD (L34674-04)

Report Comments: Spikes Added, GSS 1/11/17

Internal Comments

AREV: GSS, 1/12/17
Initials, Date

SREV: SP 1-12-17
Initials, Date

ICP 3050

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-T-846
Group ID: MA-G-ICP_-3050
Method Ref: M6010B
SOP Ref: SOPII012

WG416037

ACZ Laboratories, Inc

Instrument ID: ICP7
Analyst:
ACZ Dept: 33
Create Date: 01/11/2017 14:11
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	P 30 50	Dilution
24	WG416037CCV2	II161221-2			1	✔	1
25	WG416037CCB2	NONE			1	✔	1

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

L34674-1701201346

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	LSS
Date:	1/12/17
Approved By:	[illegible]
Date:	1.12.17

Work Group:	416037
Sample Type:	3050
Analysis Date:	1/11/17
Analyst:	LSS

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	✓		
2) Are all of the QC critera listed in LIMS within specified limits? **		✓	
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?	✓		
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
5) Is a current standard/reagent form attached to the workgroup?	✓		
6) Have all dilutions performed at the bench been checked off on the benchsheet?			✓
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			✓
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			✓
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?	✓		
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			✓
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
L34674-4MS	P= 31.88mg/kg MSD= 21.23mg/kg	MS [illegible]
L34674-5	P= 16700 mg/kg Y= 133.45%	Redo, 5X
L34674-6	P= 13400 mg/kg Y= 136.14%	Redo, 5X
L34674-9	Y= 120.76%	Redo, 5X

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416037

Date Reported: 12-Jan-17
Run ID: R1491923
Date Analyzed: 11-Jan-17
ICAL Workgroup:
Instrument ID: ICP7

WG416037ICV

Tag:

Measured: 1/11/2017 3:03:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ALUMINUM	FOUND	2.109	1		mg/L	++	0.03	0.2			
SREV	ALUMINUM	REC	105	1		%	++	0.03	0.2			
SREV	ALUMINUM	RSD	1.696	1		mg/L	++	0.03	0.15			
SREV	ANTIMONY	FOUND	4.224	1		mg/L	++	0.03	0.2			
SREV	ANTIMONY	REC	106	1		%	++	0.03	0.2			
SREV	ANTIMONY	RSD	0.8251	1		mg/L	++	0.03	0.15			
SREV	ARSENIC	FOUND	4.042	1		mg/L	++	0.04	0.2			
SREV	ARSENIC	REC	101	1		%	++	0.04	0.2			
SREV	ARSENIC	RSD	0.7562	1		mg/L	++	0.04	0.2			
SREV	BARIUM	FOUND	2.027	1		mg/L	++	0.003	0.02			
SREV	BARIUM	REC	101	1		%	++	0.003	0.02			
SREV	BARIUM	RSD	1.241	1		mg/L	++	0.003	0.015			
SREV	BERYLLIUM	FOUND	2.084	1		mg/L	++	0.01	0.05			
SREV	BERYLLIUM	REC	104	1		%	++	0.01	0.05			
SREV	BERYLLIUM	RSD	1.781	1		mg/L	++	0.01	0.05			
SREV	BISMUTH	FOUND	2.01	1		mg/L	++	0.04	0.2			
SREV	BISMUTH	REC	101	1		%	++	0.04	0.2			
SREV	BISMUTH	RSD	0.7768	1		mg/L	++	0.04	0.2			
SREV	BORON	FOUND	2.099	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	105	1		%	++	0.01	0.05			
SREV	BORON	RSD	0.9835	1		mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND	2.014	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND	2.001	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	REC	101	1		%	++	0.005	0.02			
SREV	CADMIUM	REC	100	1		%	++	0.005	0.02			
SREV	CADMIUM	RSD	0.8333	1		mg/L	++	0.005	0.015			
SREV	CADMIUM	RSD	0.8799	1		mg/L	++	0.005	0.015			
SREV	CALCIUM	FOUND	101.7	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	102	1		%	++	0.1	0.5			
SREV	CALCIUM	RSD	2.194	1		mg/L	++	0.1	0.5			
SREV	CHROMIUM	FOUND	1.986	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	FOUND	1.989	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	REC	99	1		%	++	0.01	0.05			
SREV	CHROMIUM	REC	99	1		%	++	0.01	0.05			
SREV	CHROMIUM	RSD	0.7115	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	RSD	1.958	1		mg/L	++	0.01	0.05			
SREV	COBALT	FOUND	1.99	1		mg/L	++	0.01	0.05			
SREV	COBALT	REC	99	1		%	++	0.01	0.05			
SREV	COBALT	RSD	0.5368	1		mg/L	++	0.01	0.05			
SREV	COPPER	FOUND	2.062	1		mg/L	++	0.01	0.05			
SREV	COPPER	REC	103	1		%	++	0.01	0.05			
SREV	COPPER	RSD	1.015	1		mg/L	++	0.01	0.05			
SREV	GALLIUM	FOUND	2.04	1		mg/L	++	0.1	0.5			
SREV	GALLIUM	REC	102	1		%	++	0.1	0.5			
SREV	GALLIUM	RSD	1.565	1		mg/L	++	0.1	0.5			

SREV	IRON	FOUND	2.027	1	mg/L	++	0.02	0.05
SREV	IRON	FOUND	2.028	1	mg/L	++	0.02	0.05
SREV	IRON	REC	101	1	%	++	0.02	0.05
SREV	IRON	REC	101	1	%	++	0.02	0.05
SREV	IRON	RSD	1.967	1	mg/L	++	0.02	0.05
SREV	IRON	RSD	1.585	1	mg/L	++	0.02	0.05
SREV	LEAD	FOUND	3.94	1	mg/L	++	0.03	0.2
SREV	LEAD	REC	99	1	%	++	0.03	0.2
SREV	LEAD	RSD	0.9212	1	mg/L	++	0.03	0.15
SREV	LITHIUM	FOUND	2.066	1	mg/L	++	0.008	0.04
SREV	LITHIUM	REC	103	1	%	++	0.008	0.04
SREV	LITHIUM	RSD	0.8221	1	mg/L	++	0.008	0.04
SREV	MAGNESIUM	FOUND	102.3	1	mg/L	++	0.2	1
SREV	MAGNESIUM	REC	102	1	%	++	0.2	1
SREV	MAGNESIUM	RSD	2.112	1	mg/L	++	0.2	1
SREV	MANGANESE	FOUND	2	1	mg/L	++	0.005	0.03
SREV	MANGANESE	REC	100	1	%	++	0.005	0.03
SREV	MANGANESE	RSD	2.01	1	mg/L	++	0.005	0.025
SREV	MOLYBDENUM	FOUND	2.069	1	mg/L	++	0.02	0.1
SREV	MOLYBDENUM	REC	103	1	%	++	0.02	0.1
SREV	MOLYBDENUM	RSD	0.6963	1	mg/L	++	0.02	0.1
SREV	NICKEL	FOUND	2.026	1	mg/L	++	0.008	0.04
SREV	NICKEL	REC	101	1	%	++	0.008	0.04
SREV	NICKEL	RSD	1.061	1	mg/L	++	0.008	0.04
SREV	PHOSPHORUS	FOUND	5.25	1	mg/L	++	0.1	0.5
SREV	PHOSPHORUS	REC	105	1	%	++	0.1	0.5
SREV	PHOSPHORUS	RSD	1.236	1	mg/L	++	0.1	0.5
SREV	POTASSIUM	FOUND	20.22	1	mg/L	++	0.2	1
SREV	POTASSIUM	REC	101	1	%	++	0.2	1
SREV	POTASSIUM	RSD	1.354	1	mg/L	++	0.2	1
SREV	SCANDIUM	FOUND	2.05	1	mg/L	++	0.1	0.5
SREV	SCANDIUM	REC	103	1	%	++	0.1	0.5
SREV	SCANDIUM	RSD	1.812	1	mg/L	++	0.1	0.5
SREV	SELENIUM	FOUND	4.147	1	mg/L	++	0.05	0.3
SREV	SELENIUM	REC	104	1	%	++	0.05	0.3
SREV	SELENIUM	RSD	0.7056	1	mg/L	++	0.05	0.25
SREV	SILICA	FOUND	42.37	1	mg/L	++	0.2	1
SREV	SILICA	REC	99	1	%	++	0.2	1
SREV	SILICA	RSD	1.693	1	mg/L	++	0.214	1.07
SREV	SILVER	FOUND	1.02	1	mg/L	++	0.01	0.03
SREV	SILVER	REC	102	1	%	++	0.01	0.03
SREV	SILVER	RSD	0.932	1	mg/L	++	0.01	0.025
SREV	SODIUM	FOUND	102	1	mg/L	++	0.2	1
SREV	SODIUM	REC	102	1	%	++	0.2	1
SREV	SODIUM	RSD	1.059	1	mg/L	++	0.2	1
SREV	STRONTIUM	FOUND	2.027	1	mg/L	++	0.005	0.03
SREV	STRONTIUM	REC	101	1	%	++	0.005	0.03
SREV	STRONTIUM	RSD	1.204	1	mg/L	++	0.005	0.025
SREV	SULFUR	FOUND	51.07	1	mg/L	++	0.3	1
SREV	SULFUR	REC	102	1	%	++	0.3	1
SREV	SULFUR	RSD	1.279	1	mg/L	++	0.25	1.25
SREV	THALLIUM	FOUND	3.97	1	mg/L	++	0.1	0.5
SREV	THALLIUM	REC	99	1	%	++	0.1	0.5
SREV	THALLIUM	RSD	0.1295	1	mg/L	++	0.1	0.5
SREV	TIN	FOUND	2.029	1	mg/L	++	0.04	0.2
SREV	TIN	REC	101	1	%	++	0.04	0.2
SREV	TIN	RSD	0.9666	1	mg/L	++	0.04	0.2

SREV	TITANIUM	FOUND	2.036	1		mg/L	++	0.005	0.03
SREV	TITANIUM	REC	102	1		%	++	0.005	0.03
SREV	TITANIUM	RSD	1.753	1		mg/L	++	0.005	0.025
SREV	VANADIUM	FOUND	2.056	1		mg/L	++	0.005	0.03
SREV	VANADIUM	REC	103	1		%	++	0.005	0.03
SREV	VANADIUM	RSD	2.038	1		mg/L	++	0.005	0.025
SREV	YTTRIUM	REC	97.94	1		%	++	0.001	0.005
SREV	ZINC	FOUND	2.038	1		mg/L	++	0.01	0.05
SREV	ZINC	FOUND	1.973	1		mg/L	++	0.01	0.05
SREV	ZINC	REC	102	1		%	++	0.01	0.05
SREV	ZINC	REC	99	1		%	++	0.01	0.05
SREV	ZINC	RSD	1.009	1		mg/L	++	0.01	0.05
SREV	ZINC	RSD	0.9566	1		mg/L	++	0.01	0.05

WG416037ICB

Tag:

Measured: 1/11/2017 3:06:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ALUMINUM	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	BARIUM	FOUND		1	U	mg/L	++	0.003	0.02			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	BISMUTH	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	CHROMIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CHROMIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	COBALT	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	COPPER	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	GALLIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	IRON	FOUND		1	U	mg/L	++	0.02	0.05			
SREV	IRON	FOUND		1	U	mg/L	++	0.02	0.05			
SREV	LEAD	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	LITHIUM	FOUND		1	U	mg/L	++	0.008	0.04			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	MANGANESE	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.02	0.1			
SREV	NICKEL	FOUND		1	U	mg/L	++	0.008	0.04			
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	POTASSIUM	FOUND	0.22	1	B	mg/L	++	0.2	1			
SREV	SCANDIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.05	0.3			
SREV	SILICA	FOUND		1	U	mg/L	++	0.2	1			
SREV	SILVER	FOUND		1	U	mg/L	++	0.01	0.03			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	STRONTIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	SULFUR	FOUND		1	U	mg/L	++	0.3	1			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	TIN	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	TITANIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	VANADIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	YTTRIUM	REC	100.8	1		%	++	0.001	0.005			
SREV	ZINC	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	ZINC	FOUND		1	U	mg/L	++	0.01	0.05			

WG416037PQV

Tag: Measured: 1/11/2017 3:09:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	0.51	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	102	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.73	1		%	++	0.001	0.005			

WG416037ICSAB

Tag: Measured: 1/11/2017 3:12:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	4.9	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	98	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.21	1		%	++	0.001	0.005			

WG415792PBS

Tag: Measured: 1/11/2017 3:18:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		100	U	mg/Kg	++	10	50			
SREV	YTTRIUM	REC	100.26	100		%	++	0.001	0.005			

WG415792LCSS2

Tag: Measured: 1/11/2017 3:27:29 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	689	100		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	82	100		%	++	10	50			
SREV	YTTRIUM	REC	107.06	100		%	++	0.001	0.005			

WG415792LCSSD

Tag: Measured: 1/11/2017 3:30:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	691	100		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	82	100		%	++	10	50			
SREV	PHOSPHORUS	RPD	0	100		%	++	10	50			
SREV	YTTRIUM	REC	108.44	100		%	++	0.001	0.005			

L34674-01

Tag: Measured: 1/11/2017 3:33:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	6470	102		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	117	102		%	++	0.001	0.005			

L34674-02

Tag: Measured: 1/11/2017 3:36:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	1590	102		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	108	102		%	++	0.001	0.005			

L34674-03

Tag: Measured: 1/11/2017 3:40:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	4130	102		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	112	102		%	++	0.001	0.005			

L34674-04

Tag: Measured: 1/11/2017 3:43:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	2220	102		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	110	102		%	++	0.001	0.005			

L34674-04SDL

Tag: Measured: 1/11/2017 3:46:31 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	D	8	102		%	++	10	50			
SREV	PHOSPHORUS	FOUND	480	102		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REG	2400	102		mg/Kg	++	10	50			
SREV	YTTRIUM	REC	105.47	102		%	++	0.001	0.005			

WG416037CCV1

Tag: Measured: 1/11/2017 3:49:31 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	2.68	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	107	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.03	1		%	++	0.001	0.005			

WG416037CCB1

Tag: Measured: 1/11/2017 3:52:29 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	YTTRIUM	REC	100.86	1		%	++	0.001	0.005			

L34674-04 MS

Tag: Measured: 1/11/2017 3:55:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	3252	102		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	1013	102		%	ALRT	10	50		M3	
SREV	YTTRIUM	REC	108.18	102		%	++	0.001	0.005			

L34674-04 MSD

Tag: Measured: 1/11/2017 3:58:43 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	2165	102		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	-54	102		%	ALRT	10	50		M3	
SREV	PHOSPHORUS	RPD	40	102		%	ALRT	10	50		RD	
SREV	YTTRIUM	REC	108.44	102		%	++	0.001	0.005			

L34674-05

Tag: Measured: 1/11/2017 4:01:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	PHOSPHORUS	P-3050	16700	101	O	mg/Kg	OCAL	10	50			
NEED	YTTRIUM	REC	133	101		%	ALRT	0.001	0.005			

L34674-06

Tag: Measured: 1/11/2017 4:05:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	PHOSPHORUS	P-3050	13400	101	O	mg/Kg	OCAL	10	50			
NEED	YTTRIUM	REC	136	101		%	ALRT	0.001	0.005			

L34674-07

Tag: Measured: 1/11/2017 4:08:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	4510	102		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	108	102		%	++	0.001	0.005			

L34674-08

Tag: Measured: 1/11/2017 4:11:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	6560	101		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	108	101		%	++	0.001	0.005			

L34674-09

Tag: Measured: 1/11/2017 4:14:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	PHOSPHORUS	P-3050	3220	101		mg/Kg	++	10	50			
NEED	YTTRIUM	REC	121	101		%	ALRT	0.001	0.005			

L34674-10

Tag: Measured: 1/11/2017 4:17:49 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	2460	101		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	116	101		%	++	0.001	0.005			

L34674-14

Tag: Measured: 1/11/2017 4:20:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	4330	101		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	119	101		%	++	0.001	0.005			

WG416037CCV2

Tag: Measured: 1/11/2017 4:23:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	2.76	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	110	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	99.17	1		%	++	0.001	0.005			

WG416037CCB2

Tag: Measured: 1/11/2017 4:26:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	YTTRIUM	REC	100.46	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/11/2017 14:51:41 Type: Cal
Method: 6010B(v67) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0000**	**-.0006**	**-.0000**	**.0001**	**.0045**	**.0019**	**.0000**	**-.0030**	**-.0001**
Stddev	.0000	.0002	.0000	.0000	.0011	.0001	.0000	.0000	.0000
%RSD	41.17	32.92	93.23	18.12	23.47	4.532	744.4	.0810	24.03
#1	-.0000	-.0007	-.0000	.0002	.0052	.0019	-.0000	-.0030	-.0001
#2	-.0001	-.0005	-.0000	.0001	.0038	.0018	.0000	-.0030	-.0001

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**-.0001**	**-.0000**	**.0000**	**.0016**	**-.0000**	**.0000**	**.0003**	**.0004**
Stddev	.0000	.0001	.0000	.0000	.0000	.0000	.0001	.0000	.0001
%RSD	251.8	100.9	58.56	900.7	.3282	196.3	279.8	1.859	16.56
#1	.0000	-.0001	-.0000	.0000	.0016	.0000	-.0000	.0003	.0003
#2	-.0000	-.0000	-.0001	-.0000	.0016	-.0001	.0001	.0003	.0004

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0012**	**.0000**	**.0000**	**-.0000**	**.0007**	**.0000**	**-.0001**	**-.0000**	**.0001**
Stddev	.0000	.0000	.0000	.0000	.0004	.0000	.0000	.0000	.0000
%RSD	.9170	115.8	190.1	77.87	58.67	1.120	19.87	53.56	42.57
#1	.0012	.0000	-.0000	-.0000	.0010	.0000	-.0001	-.0000	.0001
#2	.0012	.0000	.0001	-.0000	.0004	.0000	-.0000	-.0000	.0000

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0001**	**-.0000**	**.0011**	**.0011**	**.0000**	**-.0045**	**.0002**	**-.0000**
Stddev	.0000	.0000	.0000	.0001	.0001	.0000	.0001	.0001	.0000
%RSD	85.01	13.07	717.8	8.794	8.794	52.17	1.738	31.52	31.19
#1	.0000	.0001	-.0000	.0011	.0011	.0000	-.0044	.0002	-.0000
#2	.0000	.0001	.0000	.0012	.0012	.0000	-.0046	.0003	-.0000

Sample Name: Blank Acquired: 1/11/2017 14:51:41 Type: Cal
Method: 6010B(v67) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**-.0003**	**-.0000**	**.0000**
Stddev	.0000	.0000	.0000
%RSD	2.707	10.27	22.66
#1	-.0003	-.0000	.0000
#2	-.0003	-.0000	.0000

Int. Std.	Y_3710
Units	Cts/S
Avg	28685.
Stddev	136.
%RSD	.47394
#1	28589.
#2	28781.

Sample Name: CalStd-1 Acquired: 1/11/2017 14:54:43 Type: Cal
Method: 6010B(v67) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0206**	**.1638**	**.0050**	**.0393**	**3.474**	**2.619**	**.0085**	**.0444**	**.0721**
Stddev	.0006	.0047	.0001	.0004	.076	.070	.0001	.0015	.0009
%RSD	3.127	2.865	1.361	1.145	2.180	2.663	.8613	3.386	1.257
#1	.0202	.1605	.0049	.0390	3.421	2.569	.0084	.0434	.0714
#2	.0211	.1671	.0050	.0396	3.528	2.668	.0086	.0455	.0727

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0513**	**.0285**	**.0654**	**.0963**	**.0950**	**.0392**	**.0884**	**.0060**	**.0564**
Stddev	.0005	.0003	.0007	.0030	.0023	.0012	.0026	.0001	.0009
%RSD	1.041	1.082	1.007	3.162	2.434	3.029	2.981	2.478	1.600
#1	.0509	.0283	.0649	.0942	.0933	.0384	.0866	.0059	.0558
#2	.0516	.0288	.0658	.0985	.0966	.0401	.0903	.0061	.0571

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.5523**	**.0254**	**.2743**	**.0129**	**.0777**	**.0039**	**.0086**	**.0059**	**.0026**
Stddev	.0106	.0007	.0079	.0001	.0021	.0000	.0001	.0000	.0000
%RSD	1.927	2.913	2.879	.8823	2.766	.0980	.6871	.7459	1.006
#1	.5447	.0248	.2687	.0129	.0762	.0039	.0086	.0058	.0026
#2	.5598	.0259	.2799	.0130	.0792	.0039	.0087	.0059	.0026

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.359**	**.0042**	**.0452**	**.0452**	**.0092**	**2.596**	**.1277**	**.0093**	**.0348**
Stddev	.034	.0001	.0014	.0014	.0000	.063	.0031	.0000	.0010
%RSD	2.492	1.882	3.049	3.049	.4819	2.440	2.401	.4980	2.741
#1	1.335	.0041	.0442	.0442	.0092	2.551	.1256	.0093	.0341
#2	1.383	.0042	.0462	.0462	.0092	2.641	.1299	.0094	.0355

Sample Name: CalStd-1 Acquired: 1/11/2017 14:54:43 Type: Cal
Method: 6010B(v67) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0240	.0418
Stddev	.0002	.0005
%RSD	.7684	1.260
#1	.0239	.0414
#2	.0241	.0422

Int. Std.	Y_3710
Units	Cts/S
Avg	28859.
Stddev	107.
%RSD	.37019
#1	28934.
#2	28783.

Sample Name: CalStd-2 Acquired: 1/11/2017 14:57:36 Type: Cal
Method: 6010B(v67) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0409**	**.3262**	**.0098**	**.0777**	**6.920**	**5.203**	**.0167**	**.0895**	**.1418**
Stddev	.0004	.0056	.0000	.0004	.083	.092	.0000	.0019	.0004
%RSD	.8742	1.726	.1696	.4851	1.194	1.779	.0588	2.081	.2750
#1	.0407	.3222	.0098	.0779	6.862	5.137	.0167	.0882	.1415
#2	.0412	.3302	.0098	.0774	6.979	5.268	.0167	.0908	.1421

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.1011**	**.0562**	**.1287**	**.1897**	**.1867**	**.0779**	**.1744**	**.0116**	**.1116**
Stddev	.0001	.0000	.0001	.0040	.0018	.0019	.0040	.0002	.0013
%RSD	.1331	.0817	.0538	2.085	.9614	2.448	2.286	1.887	1.125
#1	.1010	.0562	.1286	.1869	.1854	.0766	.1716	.0114	.1107
#2	.1011	.0561	.1287	.1925	.1880	.0793	.1772	.0117	.1125

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.103**	**.0502**	**.5420**	**.0256**	**.1535**	**.0077**	**.0170**	**.0115**	**.0051**
Stddev	.011	.0010	.0112	.0000	.0017	.0000	.0000	.0000	.0000
%RSD	.9901	1.994	2.062	.0008	1.109	.1999	.2096	.1655	.3146
#1	1.096	.0495	.5341	.0256	.1523	.0077	.0170	.0116	.0051
#2	1.111	.0509	.5499	.0256	.1547	.0077	.0170	.0115	.0051

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.710**	**.0082**	**.0887**	**.0887**	**.0181**	**5.180**	**.2522**	**.0183**	**.0691**
Stddev	.044	.0000	.0015	.0015	.0000	.067	.0045	.0001	.0013
%RSD	1.614	.2070	1.712	1.712	.1093	1.290	1.770	.6931	1.855
#1	2.679	.0082	.0876	.0876	.0181	5.133	.2491	.0184	.0682
#2	2.741	.0082	.0898	.0898	.0182	5.228	.2554	.0182	.0700

Sample Name: CalStd-2 Acquired: 1/11/2017 14:57:36 Type: Cal
Method: 6010B(v67) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0468	.0820
Stddev	.0002	.0001
%RSD	.3370	.1374
#1	.0467	.0820
#2	.0469	.0821

Int. Std.	Y_3710
Units	Cts/S
Avg	29160.
Stddev	107.
%RSD	.36727
#1	29084.
#2	29236.

Sample Name: WG415792LCSS1 Acquired: 1/11/2017 15:21:36 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52516 Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3188**	**82.39**	**1.343**	**1.232**	**1.962**	**.9320**	**-.0852**	**53.92**	**.8126**
Stddev	.0016	.78	.026	.003	.005	.0125	.0011	1.23	.0008
%RSD	.4996	.9416	1.919	.2187	.2472	1.344	1.273	2.290	.0931
#1	.3176	81.84	1.361	1.234	1.959	.9232	-.0860	53.04	.8121
#2	.3199	82.94	1.325	1.230	1.966	.9409	-.0844	54.79	.8131

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.8166**	**1.443**	**1.308**	**1.305**	**1.618**	**146.9**	**142.8**	**.0406**	**23.35**
Stddev	.0023	.005	.001	.025	.006	2.9	.8	.0098	.06
%RSD	.2790	.3158	.0978	1.944	.3579	1.971	.5940	24.09	.2476
#1	.8182	1.446	1.309	1.287	1.614	144.8	142.2	.0337	23.31
#2	.8150	1.439	1.307	1.322	1.622	148.9	143.4	.0476	23.39

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0728**	**24.67**	**3.422**	**1.117**	**7.784**	**1.245**	**6.540**	**1.360**	**1.493**
Stddev	.0002	.44	.054	.005	.009	.003	.010	.006	.013
%RSD	.2814	1.779	1.583	.4170	.1124	.2362	.1523	.4259	.8761
#1	.0730	24.36	3.384	1.121	7.790	1.247	6.547	1.356	1.503
#2	.0727	24.98	3.460	1.114	7.777	1.243	6.533	1.364	1.484

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6933**	**.0223**	**1.700**	**15.93**	**34.09**	**1.398**	**.9755**	**3.479**	**1.316**
Stddev	.0076	.0002	.010	.21	.45	.004	.0029	.043	.001
%RSD	1.103	.8931	.5816	1.313	1.313	.3222	.2960	1.229	.0401
#1	.6878	.0221	1.707	15.78	33.77	1.395	.9734	3.448	1.317
#2	.6987	.0224	1.693	16.08	34.41	1.401	.9775	3.509	1.316

Sample Name: WG415792LCSS1 Acquired: 1/11/2017 15:21:36 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52516 Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.100	1.808	1.824
Stddev	.013	.002	.002
%RSD	1.156	.1100	.1089
#1	1.091	1.807	1.822
#2	1.109	1.810	1.825

Int. Std.	Y_3710
Units	Cts/S
Avg	29704.
Stddev	387.
%RSD	1.3033
#1	29430.
#2	29978.

Sample Name: CalStd-3 Acquired: 1/11/2017 15:00:30 Type: Cal
Method: 6010B(v67) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.820**	**1.172**	**.5175**	**7.824**	**.0263**	**.1176**
Stddev	.028	.013	.0094	.080	.0000	.0001
%RSD	1.518	1.114	1.819	1.025	.0262	.1058
#1	1.800	1.163	.5109	7.768	.0263	.1177
#2	1.839	1.181	.5242	7.881	.0263	.1175

Int. Std.	Y_3710
Units	Cts/S
Avg	**28672.**
Stddev	163.
%RSD	.56983
#1	28557.
#2	28788.

Sample Name: ICV Acquired: 1/11/2017 15:03:32 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.020	F 2.109	4.042	2.099	2.027	2.084	2.010	101.7	2.001
Stddev	.009	.036	.031	.021	.025	.037	.016	2.2	.017
%RSD	.9320	1.696	.7562	.9835	1.241	1.781	.7768	2.194	.8333
#1	1.013	2.084	4.020	2.084	2.009	2.058	1.999	100.2	1.990
#2	1.027	2.134	4.063	2.113	2.044	2.111	2.021	103.3	2.013
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value		2.000							
Range		5.440%							

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.014	1.990	1.986	1.989	2.062	2.027	2.028	2.040	20.22
Stddev	.018	.011	.014	.039	.021	.040	.032	.032	.27
%RSD	.8799	.5368	.7115	1.958	1.015	1.967	1.585	1.565	1.354
#1	2.001	1.982	1.976	1.961	2.047	1.999	2.005	2.017	20.03
#2	2.026	1.997	1.996	2.016	2.077	2.055	2.050	2.062	20.42
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.066	102.3	2.000	2.069	102.0	2.026	5.253	3.940	51.07
Stddev	.017	2.2	.040	.014	1.1	.021	.065	.036	.65
%RSD	.8221	2.112	2.010	.6963	1.059	1.061	1.236	.9212	1.279
#1	2.054	100.8	1.972	2.058	101.3	2.011	5.207	3.914	50.61
#2	2.078	103.8	2.029	2.079	102.8	2.042	5.298	3.966	51.53
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICV Acquired: 1/11/2017 15:03:32 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 4.224	2.045	4.147	19.80	F 42.37	2.029	2.027	2.036	3.971
Stddev	.035	.037	.029	.34	.72	.020	.024	.036	.005
%RSD	.8251	1.812	.7056	1.693	1.693	.9666	1.204	1.753	.1295
#1	4.200	2.019	4.126	19.56	41.86	2.015	2.010	2.010	3.975
#2	4.249	2.071	4.168	20.04	42.88	2.043	2.045	2.061	3.967
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	4.000				20.00				
Range	5.440%				5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	2.056	1.973	2.038
Stddev	.042	.020	.020
%RSD	2.038	1.009	.9566
#1	2.026	1.959	2.024
#2	2.085	1.987	2.052
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	28094.
Stddev	13.
%RSD	.04708
#1	28084.
#2	28103.

Sample Name: ICB Acquired: 1/11/2017 15:06:25 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0029**	**-.0050**	**-.0154**	**-.0069**	**-.0004**	**-.0014**	**-.0102**	**-.0246**	**-.0048**
Stddev	.0008	.0018	.0081	.0011	.0004	.0001	.0004	.0082	.0000
%RSD	26.47	36.67	52.47	15.68	98.93	5.660	4.106	33.51	.4806
#1	-.0034	-.0063	-.0097	-.0061	-.0001	-.0013	-.0099	-.0187	-.0048
#2	-.0023	-.0037	-.0211	-.0076	-.0007	-.0014	-.0105	-.0304	-.0047
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0044**	**-.0051**	**-.0132**	**-.0108**	**-.0031**	**-.0114**	**-.0116**	**.0027**	**.2162**
Stddev	.0004	.0002	.0011	.0014	.0001	.0036	.0005	.0000	.0303
%RSD	9.435	3.860	8.290	12.81	1.687	31.43	4.014	1.424	14.03
#1	-.0047	-.0052	-.0124	-.0099	-.0030	-.0088	-.0112	.0027	.2377
#2	-.0041	-.0050	-.0139	-.0118	-.0031	-.0139	-.0119	.0027	.1948
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009**	**.1719**	**-.0035**	**-.0015**	**.0487**	**-.0008**	**-.0118**	**-.0171**	**.0655**
Stddev	.0002	.0018	.0001	.0004	.0099	.0001	.0005	.0041	.0114
%RSD	22.42	1.051	2.603	23.79	20.40	16.82	3.982	23.99	17.42
#1	.0007	.1706	-.0034	-.0018	.0558	-.0009	-.0121	-.0142	.0736
#2	.0010	.1732	-.0035	-.0013	.0417	-.0007	-.0115	-.0200	.0574
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/11/2017 15:06:25 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0102**	**-.0002**	**-.0119**	**-.0060**	**-.0128**	**-.0121**	**-.0004**	**-.0010**	**-.0323**
Stddev	.0012	.0001	.0061	.0007	.0014	.0014	.0001	.0000	.0064
%RSD	11.60	78.55	51.39	11.23	11.23	11.65	12.36	.3968	19.86
#1	-.0111	-.0001	-.0163	-.0055	-.0118	-.0131	-.0004	-.0010	-.0369
#2	-.0094	-.0002	-.0076	-.0065	-.0138	-.0111	-.0005	-.0010	-.0278
Check ?	Chk Pass	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	**-.0023**	**-.0078**	**-.0054**
Stddev	.0006	.0012	.0001
%RSD	26.00	15.88	1.092
#1	-.0019	-.0087	-.0055
#2	-.0028	-.0069	-.0054
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**28915.**
Stddev	131.
%RSD	.45473
#1	28822.
#2	29008.

Sample Name: PQV Acquired: 1/11/2017 15:09:30 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0226	.1538	.1955	.0438	.0144	.0503	.2121	.4696	F .0096
Stddev	.0015	.0006	.0095	.0004	.0004	.0002	.0003	.0173	.0006
%RSD	6.734	.3634	4.858	.8785	2.617	.3618	.1337	3.689	6.267
#1	.0237	.1542	.2022	.0440	.0146	.0501	.2123	.4574	.0100
#2	.0215	.1534	.1888	.0435	.0141	.0504	.2119	.4819	.0092
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value									.0150
Range									-30.55%

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0105	.0474	.0400	.0403	.0478	.0413	.0393	.5385	1.240
Stddev	.0005	.0004	.0007	.0001	.0011	.0011	.0012	.0031	.033
%RSD	5.061	.8466	1.680	.2369	2.250	2.678	2.956	.5673	2.647
#1	.0101	.0471	.0404	.0402	.0471	.0405	.0385	.5363	1.217
#2	.0109	.0477	.0395	.0404	.0486	.0420	.0401	.5406	1.264
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0429	1.168	.0224	.1038	1.045	.0412	.5141	.1461	1.319
Stddev	.0004	.004	.0002	.0007	.004	.0016	.0141	.0051	.012
%RSD	.9243	.3712	.9272	.6761	.3936	3.960	2.748	3.498	.9080
#1	.0432	1.171	.0223	.1043	1.042	.0423	.5241	.1425	1.327
#2	.0426	1.165	.0226	.1033	1.048	.0400	.5041	.1497	1.310
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: PQV Acquired: 1/11/2017 15:09:30 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1482	.5112	.2552	.5176	F 1.108	.1956	.0249	.0240	.4811
Stddev	.0042	.0017	.0130	.0041	.009	.0037	.0001	.0001	.0040
%RSD	2.868	.3307	5.090	.7844	.7844	1.873	.5089	.5205	.8339
#1	.1452	.5100	.2460	.5205	1.114	.1982	.0249	.0239	.4782
#2	.1512	.5124	.2644	.5147	1.102	.1930	.0250	.0241	.4839
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0232	.0444	.0464
Stddev	.0001	.0004	.0011
%RSD	.6452	.8124	2.431
#1	.0230	.0447	.0472
#2	.0233	.0441	.0456
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	28894.
Stddev	218.
%RSD	.75611
#1	28739.
#2	29048.

Sample Name: ICSAB Acquired: 1/11/2017 15:12:32 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5198	248.2	4.982	.4887	.2401	.2403	.4729	243.8	.4536
Stddev	.0064	6.8	.024	.0009	.0014	.0025	.0087	3.4	.0003
%RSD	1.235	2.751	.4851	.1831	.5823	1.030	1.838	1.405	.0676
#1	.5152	243.4	4.965	.4894	.2391	.2386	.4667	241.4	.4539
#2	.5243	253.0	4.999	.4881	.2411	.2421	.4790	246.3	.4534
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4640	.2279	.2218	.2334	.2427	94.80	94.41	.5141	24.66
Stddev	.0013	.0026	.0011	.0019	.0013	1.29	1.16	.0035	.14
%RSD	.2727	1.138	.4901	.8017	.5421	1.360	1.224	.6831	.5779
#1	.4649	.2298	.2210	.2321	.2418	93.89	93.60	.5117	24.56
#2	.4631	.2261	.2225	.2348	.2436	95.71	95.23	.5166	24.76
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5139	254.1	.2357	.4788	24.95	.4742	4.900	.4686	2.536
Stddev	.0010	3.4	.0018	.0004	.12	.0025	.024	.0002	.034
%RSD	.1964	1.319	.7446	.0854	.4902	.5361	.4890	.0499	1.321
#1	.5132	251.7	.2344	.4791	24.86	.4724	4.917	.4688	2.512
#2	.5146	256.4	.2369	.4785	25.03	.4760	4.883	.4684	2.560
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/11/2017 15:12:32 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4694	.4936	4.972	2.524	F 5.402	2.363	.4861	.5025	2.301
Stddev	.0153	.0046	.020	.043	.093	.015	.0035	.0041	.028
%RSD	3.260	.9344	.4045	1.721	1.721	.6115	.7210	.8062	1.211
#1	.4586	.4904	4.986	2.494	5.337	2.353	.4836	.4996	2.321
#2	.4802	.4969	4.958	2.555	5.468	2.373	.4886	.5054	2.282
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2353	.4633	.4908
Stddev	.0037	.0003	.0015
%RSD	1.566	.0589	.2982
#1	.2327	.4631	.4898
#2	.2379	.4635	.4919
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	28744.
Stddev	132.
%RSD	.46000
#1	28651.
#2	28838.

Sample Name: WASH Acquired: 1/11/2017 15:15:34 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0044**	**.0192**	**-.0194**	**-.0106**	**-.0013**	**-.0022**	**-.0154**	**-.0444**	**-.0056**
Stddev	.0015	.0039	.0084	.0002	.0003	.0000	.0004	.0085	.0001
%RSD	34.22	20.29	43.40	2.208	21.41	.4407	2.606	19.10	1.993
#1	-.0055	.0219	-.0253	-.0104	-.0011	-.0021	-.0157	-.0384	-.0057
#2	-.0034	.0164	-.0134	-.0107	-.0015	-.0022	-.0151	-.0503	-.0055
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0050**	**-.0056**	**-.0133**	**-.0120**	**-.0045**	**.0062**	**.0033**	**.0037**	**.2070**
Stddev	.0000	.0009	.0000	.0007	.0006	.0049	.0027	.0064	.0326
%RSD	.0218	15.48	.3082	6.021	13.32	78.39	84.00	174.3	15.77
#1	-.0050	-.0062	-.0134	-.0115	-.0041	.0096	.0052	.0082	.2300
#2	-.0050	-.0050	-.0133	-.0125	-.0049	.0028	.0013	-.0009	.1839
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001**	**.1527**	**-.0024**	**-.0034**	**.0131**	**-.0012**	**.0110**	**-.0181**	**.0363**
Stddev	.0001	.0127	.0001	.0007	.0001	.0007	.0151	.0088	.0070
%RSD	106.8	8.326	4.977	21.20	.3967	59.41	137.1	48.36	19.27
#1	.0000	.1617	-.0025	-.0029	.0131	-.0007	.0003	-.0243	.0314
#2	.0001	.1438	-.0023	-.0040	.0132	-.0018	.0217	-.0119	.0413
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/11/2017 15:15:34 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0079	-.0008	-.0056	-.0187	-.0400	-.0157	-.0010	-.0021	-.0279
Stddev	.0114	.0001	.0176	.0078	.0167	.0032	.0000	.0000	.0099
%RSD	144.4	12.35	313.6	41.82	41.82	20.30	1.422	1.482	35.38
#1	.0002	-.0008	-.0180	-.0132	-.0282	-.0135	-.0010	-.0021	-.0209
#2	-.0159	-.0009	.0068	-.0242	-.0519	-.0180	-.0010	-.0021	-.0349
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0017	-.0078	-.0067
Stddev	.0006	.0007	.0000
%RSD	36.19	9.087	.3220
#1	-.0013	-.0073	-.0067
#2	-.0021	-.0083	-.0067
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	29128.
Stddev	274.
%RSD	.93980
#1	28934.
#2	29321.

Sample Name: WG415792PBS Acquired: 1/11/2017 15:18:34 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0016**	**.0028**	**-.0117**	**-.0056**	**-.0013**	**-.0021**	**-.0052**	**-.0605**	**-.0061**
Stddev	.0002	.0039	.0004	.0001	.0004	.0000	.0078	.0078	.0000
%RSD	11.44	137.4	3.691	2.625	33.93	1.555	150.9	12.93	.0848
#1	-.0014	.0056	-.0114	-.0055	-.0010	-.0022	-.0107	-.0550	-.0061
#2	-.0017	.0001	-.0120	-.0057	-.0016	-.0021	.0003	-.0660	-.0061

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0051**	**-.0024**	**-.0132**	**-.0118**	**-.0038**	**-.0036**	**-.0071**	**-.0071**	**.2550**
Stddev	.0002	.0020	.0006	.0019	.0008	.0020	.0000	.0025	.0048
%RSD	3.801	81.94	4.920	16.09	21.61	55.44	.0728	35.31	1.866
#1	-.0052	-.0010	-.0127	-.0132	-.0044	-.0022	-.0071	-.0053	.2584
#2	-.0049	-.0038	-.0136	-.0105	-.0032	-.0051	-.0071	-.0089	.2516

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000**	**.1420**	**-.0041**	**-.0020**	**.0114**	**-.0009**	**.0274**	**-.0128**	**.0454**
Stddev	.0007	.0075	.0000	.0012	.0021	.0015	.0082	.0001	.0001
%RSD	1834.	5.257	1.194	61.43	18.18	162.4	29.94	1.138	.2229
#1	.0005	.1473	-.0041	-.0011	.0129	-.0019	.0333	-.0129	.0453
#2	-.0004	.1367	-.0042	-.0029	.0100	.0001	.0216	-.0127	.0455

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0057**	**-.0009**	**.0032**	**-.0161**	**-.0345**	**.0204**	**-.0011**	**-.0014**	**-.0254**
Stddev	.0259	.0000	.0047	.0020	.0044	.0015	.0001	.0000	.0025
%RSD	457.3	2.379	144.9	12.71	12.71	7.340	6.023	.2137	9.792
#1	.0126	-.0009	-.0001	-.0176	-.0376	.0193	-.0011	-.0014	-.0236
#2	-.0240	-.0009	.0066	-.0147	-.0314	.0215	-.0012	-.0014	-.0272

Sample Name: WG415792PBS Acquired: 1/11/2017 15:18:34 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**-.0037**	**-.0077**	**-.0052**
Stddev	.0007	.0003	.0002
%RSD	18.34	4.110	4.372
#1	-.0042	-.0075	-.0050
#2	-.0032	-.0079	-.0053

Int. Std.	Y_3710
Units	Cts/S
Avg	28759.
Stddev	284.
%RSD	.98747
#1	28558.
#2	28960.

Sample Name: WG415792LCSSD1 Acquired: 1/11/2017 15:24:33 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52516 Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3101	81.55	1.322	1.221	1.920	.9228	-.0967	52.21	.8086
Stddev	.0027	.63	.009	.005	.003	.0113	.0059	1.09	.0011
%RSD	.8570	.7781	.6516	.4031	.1573	1.219	6.070	2.088	.1394
#1	.3082	81.10	1.328	1.224	1.918	.9148	-.0926	51.44	.8094
#2	.3120	81.99	1.316	1.217	1.922	.9307	-.1009	52.98	.8078

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8109	1.414	1.313	1.310	1.615	148.8	144.9	.0573	23.13
Stddev	.0040	.006	.007	.018	.005	2.5	1.1	.0005	.04
%RSD	.4981	.3992	.5275	1.398	.3335	1.697	.7852	.9204	.1758
#1	.8138	1.418	1.318	1.297	1.611	147.0	144.1	.0577	23.11
#2	.8081	1.410	1.308	1.323	1.619	150.6	145.7	.0569	23.16

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0739	25.13	2.928	1.114	7.609	1.237	6.484	1.351	1.478
Stddev	.0004	.41	.043	.010	.003	.009	.072	.006	.013
%RSD	.5330	1.627	1.483	.8858	.0423	.6841	1.118	.4405	.8912
#1	.0741	24.84	2.897	1.121	7.611	1.243	6.535	1.356	1.487
#2	.0736	25.42	2.959	1.107	7.607	1.231	6.433	1.347	1.468

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7049	.0221	1.657	16.04	34.33	1.394	.9590	3.571	1.284
Stddev	.0196	.0001	.012	.19	.41	.009	.0034	.034	.001
%RSD	2.778	.6495	.7169	1.193	1.193	.6240	.3552	.9412	.0945
#1	.7188	.0220	1.665	15.91	34.04	1.400	.9566	3.547	1.285
#2	.6911	.0222	1.648	16.18	34.62	1.388	.9614	3.594	1.283

Sample Name: WG415792LCSSD1 Acquired: 1/11/2017 15:24:33 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52516 Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.095	1.801	1.809
Stddev	.013	.002	.014
%RSD	1.150	.1177	.7976
#1	1.086	1.802	1.819
#2	1.103	1.799	1.799

Int. Std.	Y_3710
Units	Cts/S
Avg	29689.
Stddev	397.
%RSD	1.3374
#1	29408.
#2	29970.

Sample Name: WG415792LCSS2 Acquired: 1/11/2017 15:27:29 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0951**	**172.1**	**.8420**	**.0602**	**1.755**	**.0076**	**-.0298**	**145.6**	**.4385**
Stddev	.0006	3.3	.0113	.0027	.000	.0001	.0025	1.8	.0015
%RSD	.6670	1.943	1.336	4.433	.0218	1.326	8.519	1.231	.3330
#1	.0956	169.7	.8499	.0621	1.755	.0075	-.0280	144.3	.4395
#2	.0947	174.4	.8340	.0584	1.755	.0077	-.0316	146.8	.4374

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4439**	**.0762**	**.1808**	**.1939**	**1.177**	**189.8**	**181.3**	**.0827**	**43.16**
Stddev	.0043	.0018	.0025	.0050	.003	1.6	3.9	.0119	.01
%RSD	.9599	2.424	1.397	2.603	.2180	.8255	2.130	14.41	.0166
#1	.4469	.0775	.1826	.1903	1.179	188.7	178.6	.0911	43.16
#2	.4409	.0749	.1790	.1974	1.175	190.9	184.1	.0743	43.15

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1376**	**61.17**	**4.603**	**.0034**	**1.423**	**.1589**	**6.885**	**11.57**	**3.121**
Stddev	.0004	.55	.035	.0005	.004	.0041	.014	.04	.016
%RSD	.2545	.9015	.7500	15.40	.2982	2.585	.1956	.3483	.5086
#1	.1378	60.78	4.579	.0037	1.420	.1618	6.895	11.60	3.132
#2	.1373	61.56	4.628	.0030	1.426	.1560	6.876	11.54	3.110

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0219**	**.0327**	**-.0149**	**17.83**	**38.15**	**.0479**	**.3418**	**4.710**	**-.0307**
Stddev	.0043	.0000	.0026	.12	.25	.0050	.0005	.016	.0031
%RSD	19.53	.0112	17.46	.6472	.6472	10.34	.1609	.3450	10.01
#1	.0249	.0327	-.0131	17.74	37.97	.0514	.3414	4.699	-.0329
#2	.0189	.0327	-.0167	17.91	38.32	.0444	.3422	4.722	-.0285

Sample Name: WG415792LCSS2 Acquired: 1/11/2017 15:27:29 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3853	3.294	3.392
Stddev	.0035	.020	.019
%RSD	.9144	.5993	.5674
#1	.3828	3.308	3.406
#2	.3878	3.280	3.379

Int. Std.	Y_3710
Units	Cts/S
Avg	30711.
Stddev	433.
%RSD	1.4098
#1	30405.
#2	31017.

Sample Name: WG415792LCSSD2 Acquired: 1/11/2017 15:30:36 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0917	175.1	.8558	.0596	1.801	.0076	-.0371	147.3	.4399
Stddev	.0015	5.1	.0158	.0013	.000	.0000	.0074	1.2	.0028
%RSD	1.652	2.922	1.849	2.160	.0236	.6321	19.90	.8372	.6287
#1	.0906	171.5	.8670	.0605	1.801	.0076	-.0423	146.4	.4418
#2	.0928	178.7	.8447	.0586	1.801	.0077	-.0319	148.2	.4379

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4477	.0759	.1823	.1973	1.214	191.8	183.7	.0851	43.96
Stddev	.0038	.0006	.0021	.0005	.002	1.5	4.1	.0033	.05
%RSD	.8428	.7408	1.171	.2434	.2007	.7734	2.258	3.930	.1209
#1	.4503	.0763	.1838	.1970	1.215	190.7	180.7	.0828	44.00
#2	.4450	.0755	.1808	.1977	1.212	192.8	186.6	.0875	43.92

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1404	61.94	4.686	.0038	1.454	.1572	6.914	11.67	3.164
Stddev	.0001	.45	.026	.0011	.007	.0007	.036	.08	.009
%RSD	.0915	.7235	.5623	29.00	.4846	.4203	.5228	.6855	.2835
#1	.1405	61.63	4.667	.0045	1.459	.1577	6.939	11.73	3.158
#2	.1404	62.26	4.705	.0030	1.449	.1568	6.888	11.62	3.171

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0241	.0333	-.0316	18.38	39.34	.0544	.3489	4.735	-.0409
Stddev	.0002	.0001	.0154	.10	.21	.0005	.0004	.011	.0099
%RSD	.9378	.2991	48.67	.5213	.5213	.9178	.1054	.2244	24.14
#1	.0243	.0332	-.0425	18.31	39.19	.0541	.3486	4.728	-.0479
#2	.0240	.0334	-.0207	18.45	39.48	.0548	.3492	4.743	-.0339

Sample Name: WG415792LCSSD2 Acquired: 1/11/2017 15:30:36 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3855	3.288	3.408
Stddev	.0013	.015	.023
%RSD	.3318	.4436	.6661
#1	.3864	3.298	3.424
#2	.3846	3.277	3.392

Int. Std.	Y_3710
Units	Cts/S
Avg	31105.
Stddev	522.
%RSD	1.6767
#1	30736.
#2	31474.

Sample Name: L34674-01 Acquired: 1/11/2017 15:33:42 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0638	210.5	.0119	.1101	1.821	.0083	-.0604	168.5	.0310
Stddev	.0011	5.5	.0139	.0034	.001	.0000	.0055	1.7	.0002
%RSD	1.693	2.632	116.7	3.131	.0507	.4868	9.069	.9982	.5452
#1	.0630	206.6	.0218	.1126	1.822	.0083	-.0642	167.3	.0311
#2	.0645	214.4	.0021	.1077	1.820	.0084	-.0565	169.7	.0309

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0390	.1001	.4871	.5166	.2905	240.4	228.0	.0730	43.15
Stddev	.0014	.0011	.0032	.0014	.0005	1.4	3.3	.0030	.05
%RSD	3.543	1.147	.6484	.2755	.1877	.5900	1.460	4.052	.1160
#1	.0400	.1009	.4894	.5156	.2909	239.4	225.7	.0750	43.19
#2	.0380	.0993	.4849	.5176	.2901	241.4	230.4	.0709	43.12

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2722	76.31	26.45	.0126	1.558	.3986	63.47	.1498	2.617
Stddev	.0009	.51	.18	.0003	.006	.0077	.75	.0089	.025
%RSD	.3197	.6645	.6639	2.072	.3576	1.932	1.186	5.929	.9645
#1	.2728	75.95	26.33	.0124	1.561	.4040	64.00	.1561	2.635
#2	.2716	76.67	26.58	.0128	1.554	.3931	62.94	.1435	2.599

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0300	.0533	-.0177	16.52	35.35	.0300	.7599	2.625	-.0385
Stddev	.0037	.0002	.0041	.07	.14	.0025	.0005	.007	.0051
%RSD	12.17	.4162	23.43	.4062	.4062	8.383	.0664	.2611	13.30
#1	-.0275	.0532	-.0206	16.47	35.25	.0282	.7596	2.620	-.0349
#2	-.0326	.0535	-.0147	16.56	35.45	.0317	.7603	2.630	-.0422

Sample Name: L34674-01 Acquired: 1/11/2017 15:33:42 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4758	1.893	1.975
Stddev	.0019	.008	.015
%RSD	.3957	.4430	.7551
#1	.4771	1.899	1.986
#2	.4745	1.887	1.965

Int. Std.	Y_3710
Units	Cts/S
Avg	33434.
Stddev	432.
%RSD	1.2922
#1	33129.
#2	33740.

Sample Name: L34674-02 Acquired: 1/11/2017 15:36:56 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0787	232.6	-.0187	.1420	1.909	.0089	-.0531	54.63	-.0187
Stddev	.0036	7.4	.0033	.0039	.002	.0001	.0007	.77	.0011
%RSD	4.518	3.175	17.73	2.753	.1196	.7165	1.238	1.409	6.133
#1	.0761	227.3	-.0164	.1392	1.908	.0088	-.0527	54.09	-.0179
#2	.0812	237.8	-.0211	.1448	1.911	.0089	-.0536	55.18	-.0195

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0111	.1447	.2334	.2674	.2323	310.9	303.5	.0967	50.37
Stddev	.0022	.0006	.0018	.0022	.0005	10.8	5.3	.0046	.15
%RSD	19.38	.4104	.7881	.8200	.1966	3.475	1.754	4.761	.2970
#1	-.0096	.1443	.2321	.2658	.2320	303.3	299.7	.0934	50.27
#2	-.0127	.1452	.2347	.2689	.2326	318.6	307.2	.0999	50.48

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3794	105.7	44.78	.0079	.7596	.3251	15.58	.1938	1.309
Stddev	.0009	1.5	.80	.0007	.0020	.0004	.02	.0006	.020
%RSD	.2414	1.427	1.796	9.286	.2598	.1219	.1288	.3069	1.494
#1	.3800	104.6	44.21	.0074	.7610	.3248	15.56	.1933	1.295
#2	.3787	106.7	45.35	.0084	.7582	.3254	15.59	.1942	1.322

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0433	.0594	-.0386	12.31	26.35	.0248	.2587	1.227	-.0306
Stddev	.0076	.0004	.0214	.15	.31	.0025	.0000	.008	.0038
%RSD	17.64	.6926	55.38	1.194	1.194	9.911	.0050	.6876	12.53
#1	-.0487	.0591	-.0235	12.21	26.13	.0230	.2587	1.221	-.0279
#2	-.0379	.0597	-.0537	12.42	26.57	.0265	.2586	1.233	-.0333

Sample Name: L34674-02 Acquired: 1/11/2017 15:36:56 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2917	4.883	4.985
Stddev	.0045	.022	.018
%RSD	1.540	.4414	.3700
#1	.2885	4.868	4.972
#2	.2949	4.898	4.998

Int. Std.	Y_3710
Units	Cts/S
Avg	31032.
Stddev	133.
%RSD	.42823
#1	30938.
#2	31126.

Sample Name: L34674-03 Acquired: 1/11/2017 15:40:15 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0438	178.5	.0247	.0696	1.283	.0068	-.0532	110.1	.0149
Stddev	.0017	3.3	.0045	.0001	.007	.0001	.0030	.5	.0002
%RSD	3.955	1.826	18.33	.1060	.5566	1.009	5.565	.4893	1.477
#1	.0450	176.2	.0215	.0696	1.288	.0068	-.0553	109.7	.0151
#2	.0426	180.8	.0279	.0695	1.278	.0067	-.0511	110.5	.0148

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0212	.0760	.4833	.4939	.2357	183.3	174.1	.0808	32.17
Stddev	.0015	.0001	.0071	.0015	.0014	.5	1.9	.0006	.19
%RSD	6.959	.1963	1.464	.3074	.5991	.2502	1.075	.7641	.5960
#1	.0222	.0759	.4883	.4928	.2367	182.9	172.8	.0813	32.30
#2	.0201	.0761	.4783	.4950	.2347	183.6	175.4	.0804	32.03

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1703	39.60	5.957	.0666	1.267	.4634	40.52	.1080	1.303
Stddev	.0011	.08	.012	.0003	.009	.0071	.61	.0088	.008
%RSD	.6615	.2072	.1979	.4184	.7063	1.537	1.496	8.134	.6124
#1	.1711	39.55	5.948	.0664	1.273	.4685	40.94	.1142	1.309
#2	.1695	39.66	5.965	.0668	1.260	.4584	40.09	.1018	1.298

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0266	.0423	-.0080	10.13	21.68	.0278	.5318	3.889	-.0486
Stddev	.0073	.0001	.0120	.02	.05	.0007	.0030	.004	.0063
%RSD	27.56	.1428	150.4	.2201	.2201	2.569	.5668	.1021	12.87
#1	-.0214	.0423	-.0164	10.12	21.65	.0283	.5340	3.891	-.0442
#2	-.0317	.0422	.0005	10.15	21.71	.0273	.5297	3.886	-.0530

Sample Name: L34674-03 Acquired: 1/11/2017 15:40:15 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4075	4.846	4.932
Stddev	.0015	.041	.055
%RSD	.3711	.8494	1.116
#1	.4065	4.875	4.970
#2	.4086	4.816	4.893

Int. Std.	Y_3710
Units	Cts/S
Avg	32072.
Stddev	515.
%RSD	1.6042
#1	31708.
#2	32436.

Sample Name: L34674-04 Acquired: 1/11/2017 15:43:23 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0459**	**228.4**	**.0180**	**.0463**	**1.521**	**.0079**	**-.0585**	**77.71**	**-.0073**
Stddev	.0041	4.1	.0062	.0016	.003	.0001	.0010	.82	.0009
%RSD	8.883	1.801	34.44	3.352	.1981	.7338	1.745	1.057	12.90
#1	.0430	225.5	.0224	.0452	1.523	.0079	-.0578	77.12	-.0067
#2	.0488	231.3	.0136	.0474	1.519	.0079	-.0592	78.29	-.0080

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0016**	**.0828**	**.2820**	**.2984**	**.2131**	**203.7**	**192.6**	**.0807**	**28.36**
Stddev	.0011	.0006	.0006	.0022	.0001	1.4	6.7	.0047	.12
%RSD	65.06	.7519	.1977	.7401	.0367	.6658	3.494	5.814	.4165
#1	.0024	.0832	.2824	.2969	.2132	202.7	187.8	.0774	28.45
#2	.0009	.0824	.2816	.3000	.2131	204.6	197.4	.0840	28.28

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2152**	**48.79**	**7.683**	**.0434**	**.9605**	**.3318**	**21.76**	**.1399**	**1.058**
Stddev	.0014	.25	.032	.0003	.0016	.0012	.10	.0006	.017
%RSD	.6443	.5210	.4146	.8037	.1657	.3558	.4460	.4377	1.643
#1	.2162	48.61	7.660	.0437	.9617	.3327	21.83	.1394	1.045
#2	.2143	48.97	7.705	.0432	.9594	.3310	21.69	.1403	1.070

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0232**	**.0489**	**-.0268**	**12.28**	**26.29**	**.0325**	**.3149**	**4.504**	**-.0514**
Stddev	.0011	.0002	.0127	.04	.10	.0057	.0002	.010	.0044
%RSD	4.610	.3986	47.40	.3620	.3620	17.51	.0556	.2204	8.646
#1	-.0239	.0487	-.0178	12.25	26.22	.0365	.3148	4.497	-.0483
#2	-.0224	.0490	-.0357	12.32	26.36	.0285	.3150	4.511	-.0546

Sample Name: L34674-04 Acquired: 1/11/2017 15:43:23 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3580	8.636	8.770
Stddev	.0032	.036	.033
%RSD	.8803	.4216	.3744
#1	.3558	8.661	8.793
#2	.3602	8.610	8.746

Int. Std.	Y_3710
Units	Cts/S
Avg	31593.
Stddev	412.
%RSD	1.3049
#1	31301.
#2	31884.

Sample Name: L34674-04SDL Acquired: 1/11/2017 15:46:31 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0108	50.66	.0014	.0020	.3283	-.0000	-.0270	16.86	-.0060
Stddev	.0020	.63	.0054	.0012	.0026	.0001	.0066	.29	.0001
%RSD	18.53	1.249	379.0	61.22	.7872	480.1	24.41	1.707	2.182
#1	.0094	50.22	-.0024	.0029	.3265	-.0001	-.0223	16.65	-.0061
#2	.0123	51.11	.0052	.0011	.3302	.0000	-.0316	17.06	-.0059

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0036	.0189	.0517	.0533	.0429	45.13	44.90	.0173	6.229
Stddev	.0009	.0010	.0013	.0018	.0018	.80	.70	.0029	.055
%RSD	23.70	5.200	2.545	3.317	4.191	1.781	1.564	17.01	.8784
#1	-.0043	.0196	.0508	.0521	.0416	44.56	44.40	.0194	6.190
#2	-.0030	.0182	.0526	.0546	.0441	45.69	45.40	.0152	6.268

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0464	10.66	1.681	.0060	.2128	.0736	4.708	.0140	.2592
Stddev	.0001	.21	.025	.0004	.0005	.0038	.006	.0036	.0145
%RSD	.2394	1.970	1.493	6.783	.2584	5.134	.1205	25.42	5.579
#1	.0464	10.52	1.663	.0062	.2132	.0762	4.704	.0165	.2490
#2	.0463	10.81	1.698	.0057	.2124	.0709	4.712	.0115	.2695

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0039	.0099	-.0082	2.674	5.721	.0002	.0676	.9754	-.0303
Stddev	.0018	.0002	.0085	.037	.080	.0064	.0005	.0120	.0074
%RSD	45.43	1.861	104.0	1.394	1.394	3650.	.7405	1.228	24.31
#1	-.0027	.0097	-.0022	2.647	5.665	-.0043	.0673	.9670	-.0355
#2	-.0052	.0100	-.0141	2.700	5.778	.0047	.0680	.9839	-.0251

Sample Name: L34674-04SDL Acquired: 1/11/2017 15:46:31 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0761	1.918	1.916
Stddev	.0015	.014	.015
%RSD	1.967	.7303	.7583
#1	.0750	1.908	1.906
#2	.0771	1.928	1.926

Int. Std.	Y_3710
Units	Cts/S
Avg	30254.
Stddev	34.
%RSD	.11085
#1	30278.
#2	30230.

Sample Name: CCV Acquired: 1/11/2017 15:49:31 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5033	1.037	2.001	1.037	.9920	1.024	.9733	50.02	.9937
Stddev	.0081	.009	.007	.006	.0141	.020	.0054	1.08	.0020
%RSD	1.617	.8640	.3451	.6203	1.419	1.944	.5518	2.160	.2034
#1	.4975	1.031	1.997	1.032	.9820	1.010	.9695	49.26	.9923
#2	.5090	1.043	2.006	1.041	1.002	1.038	.9771	50.79	.9952
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9977	.9801	.9770	.9760	1.012	1.022	1.008	.9852	9.802
Stddev	.0027	.0001	.0025	.0197	.017	.013	.007	.0255	.119
%RSD	.2725	.0125	.2585	2.015	1.680	1.221	.6889	2.591	1.216
#1	.9958	.9800	.9752	.9620	1.000	1.013	1.004	.9672	9.718
#2	.9996	.9802	.9788	.9899	1.024	1.031	1.013	1.003	9.887
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9985	49.45	.9898	1.027	49.42	1.042	2.683	1.947	25.55
Stddev	.0113	1.06	.0199	.003	.56	.003	.021	.013	.01
%RSD	1.134	2.138	2.010	.2737	1.137	.2799	.7836	.6502	.0411
#1	.9905	48.71	.9757	1.025	49.03	1.040	2.668	1.956	25.55
#2	1.007	50.20	1.004	1.029	49.82	1.044	2.698	1.938	25.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 15:49:31 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.084	.9986	2.015	9.960	F 21.31	1.020	.9951	1.019	1.956
Stddev	.007	.0174	.013	.144	.31	.010	.0140	.018	.000
%RSD	.3455	1.745	.6347	1.448	1.448	1.005	1.403	1.794	.0185
#1	2.079	.9863	2.024	9.858	21.10	1.013	.9852	1.006	1.955
#2	2.089	1.011	2.006	10.06	21.53	1.027	1.005	1.032	1.956
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.011	.9821	.9920
Stddev	.020	.0031	.0005
%RSD	2.006	.3167	.0474
#1	.9967	.9799	.9923
#2	1.025	.9843	.9917
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	28693.
Stddev	190.
%RSD	.66277
#1	28558.
#2	28827.

Sample Name: CCB Acquired: 1/11/2017 15:52:29 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0032**	**-.0007**	**-.0151**	**-.0040**	**-.0005**	**-.0017**	**-.0036**	**-.0323**	**-.0056**
Stddev	.0003	.0014	.0013	.0020	.0005	.0001	.0052	.0025	.0000
%RSD	10.04	192.7	8.359	49.43	96.32	3.079	144.2	7.658	.8721
#1	-.0030	.0003	-.0142	-.0026	-.0002	-.0017	-.0072	-.0305	-.0057
#2	-.0034	-.0017	-.0160	-.0054	-.0009	-.0017	.0001	-.0340	-.0056
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0046**	**-.0051**	**-.0129**	**-.0122**	**-.0028**	**-.0023**	**-.0018**	**.0065**	**.2161**
Stddev	.0004	.0010	.0003	.0007	.0008	.0028	.0045	.0023	.0228
%RSD	8.379	18.96	1.995	5.825	28.54	121.2	252.1	36.03	10.56
#1	-.0043	-.0058	-.0130	-.0117	-.0034	-.0003	.0014	.0048	.2323
#2	-.0048	-.0044	-.0127	-.0127	-.0023	-.0043	-.0050	.0082	.2000
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000**	**.1565**	**-.0031**	**-.0020**	**.0252**	**-.0001**	**.0096**	**-.0159**	**.0734**
Stddev	.0005	.0087	.0001	.0001	.0010	.0028	.0002	.0090	.0084
%RSD	2333.	5.542	2.349	7.369	4.000	5128.	2.000	56.29	11.43
#1	.0004	.1626	-.0030	-.0019	.0259	.0020	.0098	-.0096	.0793
#2	-.0003	.1504	-.0031	-.0021	.0245	-.0021	.0095	-.0222	.0674
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 15:52:29 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0131	-.0005	.0135	-.0102	-.0219	-.0145	-.0008	-.0014	-.0296
Stddev	.0025	.0000	.0014	.0023	.0050	.0016	.0001	.0001	.0049
%RSD	18.91	1.949	10.06	22.64	22.64	11.35	11.80	3.590	16.49
#1	-.0148	-.0005	.0145	-.0086	-.0184	-.0156	-.0007	-.0014	-.0262
#2	-.0113	-.0005	.0126	-.0119	-.0254	-.0133	-.0008	-.0015	-.0331
Check ?	Chk Pass	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	-.0019	-.0068	-.0051
Stddev	.0006	.0013	.0007
%RSD	29.36	18.75	12.97
#1	-.0015	-.0059	-.0046
#2	-.0023	-.0077	-.0055
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	28932.
Stddev	199.
%RSD	.68899
#1	29073.
#2	28791.

Sample Name: L34674-04 MS Acquired: 1/11/2017 15:55:33 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II161222-8 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4923	285.0	.9456	.5676	1.949	.4572	.8598	153.8	.4193
Stddev	.0054	4.6	.0053	.0001	.021	.0010	.0091	2.2	.0013
%RSD	1.093	1.605	.5644	.0188	1.098	.2079	1.062	1.441	.3093
#1	.4885	281.8	.9418	.5677	1.964	.4566	.8663	152.2	.4203
#2	.4961	288.3	.9494	.5675	1.934	.4579	.8534	155.3	.4184

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4276	.5097	.9293	.9398	.6543	204.0	193.3	1.017	131.0
Stddev	.0020	.0006	.0009	.0133	.0009	2.0	4.8	.001	.5
%RSD	.4587	.1246	.0980	1.418	.1373	1.004	2.478	.1022	.3797
#1	.4290	.5101	.9286	.9304	.6550	202.6	189.9	1.016	131.3
#2	.4262	.5092	.9299	.9493	.6537	205.4	196.7	1.018	130.6

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.152	94.02	7.812	.4516	89.07	.7700	31.88	1.013	5.661
Stddev	.011	.96	.060	.0042	.64	.0016	.01	.012	.000
%RSD	.9600	1.026	.7713	.9228	.7147	.2040	.0416	1.166	.0071
#1	1.160	93.33	7.769	.4545	89.52	.7711	31.89	1.005	5.661
#2	1.144	94.70	7.854	.4486	88.62	.7689	31.87	1.021	5.662

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7481	.9616	.8950	17.25	36.92	.8973	.8314	6.551	1.667
Stddev	.0081	.0003	.0179	.09	.18	.0012	.0028	.019	.005
%RSD	1.089	.0266	2.000	.4979	.4979	.1366	.3344	.2939	.3245
#1	.7539	.9614	.8823	17.19	36.79	.8981	.8334	6.538	1.671
#2	.7424	.9617	.9077	17.31	37.05	.8964	.8294	6.565	1.663

Sample Name: L34674-04 MS Acquired: 1/11/2017 15:55:33 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II161222-8 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.8944	6.311	6.512
Stddev	.0074	.009	.008
%RSD	.8268	.1489	.1294
#1	.8891	6.304	6.518
#2	.8996	6.318	6.506

Int. Std.	Y_3710
Units	Cts/S
Avg	31032.
Stddev	433.
%RSD	1.3951
#1	30725.
#2	31338.

Sample Name: L34674-04 MSD Acquired: 1/11/2017 15:58:43 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II161222-8 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4938	275.4	.9225	.5578	2.043	.4560	.8565	130.1	.4227
Stddev	.0027	6.0	.0106	.0045	.029	.0025	.0130	2.1	.0009
%RSD	.5457	2.178	1.154	.7981	1.428	.5516	1.517	1.616	.2133
#1	.4957	271.2	.9300	.5609	2.064	.4543	.8657	128.6	.4234
#2	.4919	279.7	.9149	.5546	2.023	.4578	.8473	131.6	.4221

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4336	.5177	.9145	.9318	.6522	204.2	192.8	1.006	127.9
Stddev	.0028	.0036	.0050	.0162	.0011	2.4	4.9	.003	.4
%RSD	.6394	.6897	.5479	1.739	.1708	1.159	2.562	.2743	.3408
#1	.4355	.5202	.9180	.9204	.6530	202.5	189.3	1.008	128.2
#2	.4316	.5151	.9109	.9433	.6514	205.9	196.2	1.004	127.6

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.135	91.68	9.026	.4462	88.78	.7825	21.23	1.028	5.384
Stddev	.007	.95	.084	.0014	.27	.0031	.13	.008	.027
%RSD	.5955	1.034	.9350	.3046	.3076	.3911	.6119	.7540	.5090
#1	1.140	91.01	8.967	.4472	88.98	.7847	21.32	1.034	5.404
#2	1.130	92.35	9.086	.4453	88.59	.7803	21.13	1.023	5.365

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7358	.9557	.8751	17.48	37.41	.8989	.7598	6.350	1.680
Stddev	.0202	.0022	.0103	.16	.34	.0020	.0007	.025	.015
%RSD	2.743	.2297	1.174	.9151	.9151	.2242	.0889	.3912	.8761
#1	.7500	.9541	.8679	17.37	37.16	.9003	.7593	6.333	1.690
#2	.7215	.9572	.8824	17.59	37.65	.8975	.7603	6.368	1.669

Sample Name: L34674-04 MSD Acquired: 1/11/2017 15:58:43 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II161222-8 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.8755	5.778	5.954
Stddev	.0063	.024	.035
%RSD	.7181	.4102	.5965
#1	.8710	5.795	5.979
#2	.8799	5.762	5.929

Int. Std.	Y_3710
Units	Cts/S
Avg	31107.
Stddev	342.
%RSD	1.0986
#1	30866.
#2	31349.

Sample Name: L34674-05 Acquired: 1/11/2017 16:01:53 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0599	132.2	.1519	.0794	.8930	.0069	-.0435	437.8	.0664
Stddev	.0011	4.2	.0064	.0004	.0015	.0000	.0023	10.4	.0008
%RSD	1.853	3.154	4.224	.5350	.1642	.0647	5.389	2.377	1.255
#1	.0606	129.3	.1473	.0797	.8940	.0068	-.0452	430.5	.0670
#2	.0591	135.1	.1564	.0791	.8919	.0069	-.0419	445.2	.0658

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0721	.0677	1.821	1.855	.4733	176.9	169.3	.0743	23.77
Stddev	.0010	.0012	.007	.014	.0017	.8	2.4	.0061	.01
%RSD	1.444	1.809	.3987	.7294	.3623	.4419	1.389	8.234	.0284
#1	.0728	.0686	1.826	1.845	.4745	176.4	167.6	.0699	23.77
#2	.0714	.0669	1.815	1.864	.4721	177.5	170.9	.0786	23.78

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1426	34.16	5.958	.1328	3.879	1.588	165.7	.0946	7.485
Stddev	.0008	.14	.019	.0029	.018	.014	1.1	.0069	.055
%RSD	.5538	.4205	.3235	2.180	.4593	.9057	.6382	7.333	.7378
#1	.1432	34.06	5.944	.1348	3.891	1.598	166.5	.0995	7.524
#2	.1421	34.26	5.971	.1307	3.866	1.578	165.0	.0897	7.446

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0093	.0553	.1816	10.61	22.71	.0207	1.740	2.177	-.0426
Stddev	.0019	.0000	.0011	.02	.03	.0005	.026	.002	.0088
%RSD	20.76	.0594	.6031	.1509	.1509	2.616	1.506	.1057	20.53
#1	-.0079	.0553	.1809	10.60	22.68	.0203	1.721	2.175	-.0488
#2	-.0106	.0554	.1824	10.62	22.73	.0211	1.758	2.178	-.0364

Sample Name: L34674-05 Acquired: 1/11/2017 16:01:53 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.116	6.384	6.795
Stddev	.003	.026	.026
%RSD	.2993	.4018	.3880
#1	1.114	6.402	6.813
#2	1.119	6.366	6.776

Int. Std.	Y_3710
Units	Cts/S
Avg	38280.
Stddev	341.
%RSD	.88989
#1	38039.
#2	38521.

Sample Name: L34674-06 Acquired: 1/11/2017 16:05:12 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0214	74.07	.0301	.1123	.3480	.0018	-.0268	287.1	.0168
Stddev	.0006	.56	.0025	.0002	.0003	.0000	.0044	10.7	.0004
%RSD	2.938	.7507	8.238	.1847	.0735	2.213	16.50	3.725	2.427
#1	.0209	73.68	.0319	.1124	.3478	.0017	-.0237	279.5	.0171
#2	.0218	74.46	.0284	.1121	.3481	.0018	-.0300	294.6	.0166

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0198	.0244	.9882	.9933	.1567	84.45	83.22	.0117	16.88
Stddev	.0002	.0008	.0045	.0147	.0000	1.43	1.06	.0087	.01
%RSD	1.108	3.266	.4587	1.479	.0157	1.692	1.270	74.00	.0593
#1	.0199	.0239	.9914	.9829	.1567	83.44	82.47	.0179	16.87
#2	.0196	.0250	.9850	1.004	.1567	85.47	83.96	.0056	16.88

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0622	10.90	2.468	.0277	2.372	.5989	132.6	.0349	2.993
Stddev	.0001	.18	.030	.0004	.010	.0046	.7	.0038	.019
%RSD	.0829	1.644	1.198	1.427	.4208	.7693	.5462	10.87	.6493
#1	.0621	10.77	2.447	.0280	2.379	.6022	133.2	.0376	3.007
#2	.0622	11.02	2.489	.0274	2.365	.5957	132.1	.0323	2.979

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0200	.0200	.0079	9.448	20.22	.0158	1.098	.9798	-.0371
Stddev	.0056	.0002	.0000	.094	.20	.0008	.002	.0087	.0007
%RSD	27.76	.7683	.5263	.9943	.9943	4.817	.1857	.8838	1.986
#1	-.0161	.0199	.0079	9.381	20.08	.0163	1.096	.9737	-.0376
#2	-.0239	.0201	.0079	9.514	20.36	.0152	1.099	.9859	-.0366

Sample Name: L34674-06 Acquired: 1/11/2017 16:05:12 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3966	2.386	2.511
Stddev	.0046	.007	.013
%RSD	1.163	.2756	.5129
#1	.3934	2.390	2.521
#2	.3999	2.381	2.502

Int. Std.	Y_3710
Units	Cts/S
Avg	39052.
Stddev	510.
%RSD	1.3055
#1	38691.
#2	39412.

Sample Name: L34674-07 Acquired: 1/11/2017 16:08:16 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0667	193.9	.0065	.1209	2.013	.0080	-.0485	214.5	.0039
Stddev	.0018	4.9	.0026	.0023	.030	.0000	.0020	1.6	.0004
%RSD	2.625	2.531	39.91	1.881	1.476	.0775	4.089	.7580	9.204
#1	.0655	190.4	.0047	.1193	2.034	.0080	-.0471	213.4	.0036
#2	.0680	197.3	.0083	.1225	1.992	.0080	-.0499	215.7	.0041

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0114	.1313	.2849	.3105	.2788	260.7	246.1	.0837	32.67
Stddev	.0023	.0007	.0020	.0037	.0009	1.9	6.9	.0112	.06
%RSD	19.99	.5331	.6937	1.197	.3133	.7096	2.824	13.35	.1737
#1	.0130	.1318	.2863	.3079	.2782	259.3	241.2	.0758	32.71
#2	.0098	.1308	.2835	.3132	.2795	262.0	251.0	.0916	32.63

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2897	143.4	33.88	.0042	2.144	.3508	44.24	.1726	1.635
Stddev	.0014	1.3	.67	.0021	.012	.0012	.31	.0119	.001
%RSD	.4690	.8870	1.973	50.94	.5539	.3297	.6901	6.923	.0386
#1	.2907	142.5	33.41	.0027	2.153	.3516	44.46	.1810	1.635
#2	.2888	144.3	34.36	.0057	2.136	.3500	44.02	.1641	1.634

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0371	.0533	-.0429	14.96	32.01	.0316	.6962	1.734	-.0247
Stddev	.0041	.0000	.0136	.07	.16	.0037	.0038	.001	.0047
%RSD	10.91	.0200	31.75	.4850	.4850	11.59	.5483	.0663	18.96
#1	-.0400	.0533	-.0333	14.91	31.90	.0291	.6989	1.733	-.0214
#2	-.0343	.0533	-.0526	15.01	32.12	.0342	.6935	1.734	-.0280

Sample Name: L34674-07 Acquired: 1/11/2017 16:08:16 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 102 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4366	2.568	2.704
Stddev	.0019	.013	.018
%RSD	.4390	.5053	.6485
#1	.4352	2.578	2.716
#2	.4379	2.559	2.691

Int. Std.	Y_3710
Units	Cts/S
Avg	31096.
Stddev	452.
%RSD	1.4548
#1	30776.
#2	31416.

Sample Name: L34674-08 Acquired: 1/11/2017 16:11:34 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0637	202.4	.0494	.1158	1.785	.0088	-.0595	279.0	.0093
Stddev	.0008	2.9	.0073	.0024	.001	.0001	.0069	3.4	.0002
%RSD	1.186	1.412	14.81	2.057	.0412	1.384	11.61	1.226	2.423
#1	.0642	200.4	.0442	.1142	1.786	.0088	-.0644	276.5	.0094
#2	.0632	204.4	.0545	.1175	1.785	.0089	-.0546	281.4	.0091

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0164	.1082	.3418	.3645	.2948	258.0	243.1	.0904	35.27
Stddev	.0019	.0010	.0004	.0048	.0014	2.0	5.0	.0186	.01
%RSD	11.36	.9646	.1066	1.325	.4791	.7697	2.074	20.57	.0183
#1	.0178	.1089	.3421	.3611	.2938	256.6	239.5	.0773	35.27
#2	.0151	.1074	.3416	.3679	.2958	259.4	246.7	.1036	35.26

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3045	108.1	25.72	.0041	2.074	.4712	64.94	.1602	1.910
Stddev	.0008	1.0	.39	.0010	.000	.0014	.17	.0096	.001
%RSD	.2551	.9527	1.512	25.00	.0095	.2922	.2572	6.009	.0630
#1	.3051	107.3	25.45	.0048	2.074	.4702	65.06	.1670	1.911
#2	.3040	108.8	26.00	.0034	2.074	.4722	64.82	.1534	1.909

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0306	.0532	-.0182	14.24	30.47	.0263	.8271	1.388	-.0501
Stddev	.0121	.0002	.0081	.15	.31	.0034	.0013	.007	.0125
%RSD	39.59	.2881	44.46	1.026	1.026	12.75	.1606	.4971	24.94
#1	-.0220	.0531	-.0125	14.13	30.25	.0239	.8261	1.383	-.0590
#2	-.0392	.0533	-.0239	14.34	30.69	.0287	.8280	1.393	-.0413

Sample Name: L34674-08 Acquired: 1/11/2017 16:11:34 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4281	2.276	2.387
Stddev	.0038	.002	.004
%RSD	.8803	.0779	.1732
#1	.4254	2.275	2.390
#2	.4308	2.278	2.384

Int. Std.	Y_3710
Units	Cts/S
Avg	30859.
Stddev	262.
%RSD	.84846
#1	30674.
#2	31045.

Sample Name: L34674-09 Acquired: 1/11/2017 16:14:47 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0339	55.33	.0503	.0808	.3504	.0023	-.0443	78.82	-.0050
Stddev	.0029	.14	.0034	.0018	.0031	.0000	.0053	.89	.0005
%RSD	8.514	.2506	6.779	2.281	.8924	1.203	11.88	1.127	9.691
#1	.0318	55.42	.0478	.0821	.3526	.0023	-.0480	78.19	-.0046
#2	.0359	55.23	.0527	.0795	.3482	.0023	-.0406	79.45	-.0053

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0027	.0491	.8980	.9064	.3290	154.0	146.3	.0332	14.65
Stddev	.0004	.0005	.0137	.0081	.0028	1.0	3.8	.0112	.13
%RSD	13.53	1.056	1.523	.8925	.8528	.6264	2.622	33.66	.9031
#1	-.0024	.0495	.9077	.9007	.3310	153.3	143.6	.0253	14.74
#2	-.0029	.0488	.8883	.9121	.3270	154.7	149.0	.0411	14.56

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0381	8.806	1.781	.0204	1.256	.9664	31.91	.0354	1.219
Stddev	.0004	.058	.008	.0006	.015	.0172	.45	.0128	.013
%RSD	.9946	.6604	.4327	2.883	1.207	1.779	1.422	36.29	1.023
#1	.0383	8.765	1.776	.0200	1.266	.9786	32.23	.0444	1.228
#2	.0378	8.848	1.786	.0208	1.245	.9543	31.59	.0263	1.210

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0311	.0312	.0093	11.68	25.00	.0182	.3642	.3815	-.0574
Stddev	.0034	.0002	.0014	.01	.02	.0021	.0022	.0008	.0032
%RSD	10.79	.5133	15.41	.0888	.0888	11.43	.5997	.2171	5.617
#1	-.0287	.0313	.0103	11.67	24.98	.0168	.3658	.3821	-.0596
#2	-.0334	.0311	.0083	11.69	25.01	.0197	.3627	.3809	-.0551

Sample Name: L34674-09 Acquired: 1/11/2017 16:14:47 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2306	3.249	3.288
Stddev	.0012	.037	.043
%RSD	.5043	1.136	1.315
#1	.2297	3.276	3.319
#2	.2314	3.223	3.258

Int. Std.	Y_3710
Units	Cts/S
Avg	34641.
Stddev	713.
%RSD	2.0576
#1	34137.
#2	35145.

Sample Name: L34674-10 Acquired: 1/11/2017 16:17:49 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0173	33.40	.0252	.0446	.1613	.0003	-.0347	60.18	-.0049
Stddev	.0010	.07	.0065	.0013	.0016	.0000	.0075	.46	.0000
%RSD	5.886	.2141	25.80	2.993	.9927	3.240	21.56	.7590	.8050
#1	.0166	33.45	.0206	.0455	.1625	.0003	-.0400	59.86	-.0049
#2	.0180	33.35	.0298	.0436	.1602	.0003	-.0294	60.50	-.0049

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0032	.0207	.6572	.6651	.2105	81.47	80.76	.0076	8.680
Stddev	.0003	.0004	.0065	.0005	.0008	.38	.22	.0029	.065
%RSD	9.238	2.058	.9856	.0775	.3892	.4708	.2747	38.14	.7446
#1	-.0034	.0210	.6618	.6648	.2111	81.20	80.60	.0096	8.726
#2	-.0030	.0204	.6526	.6655	.2099	81.74	80.92	.0055	8.635

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0212	5.160	.6434	.0086	1.040	.5282	24.37	.0213	1.014
Stddev	.0004	.030	.0008	.0009	.012	.0074	.26	.0036	.029
%RSD	1.919	.5900	.1171	11.02	1.190	1.404	1.072	16.85	2.896
#1	.0215	5.139	.6428	.0093	1.049	.5334	24.55	.0238	1.035
#2	.0209	5.182	.6439	.0079	1.031	.5229	24.18	.0188	.9936

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0190	.0173	.0317	9.699	20.76	.0174	.2610	.2562	-.0491
Stddev	.0048	.0001	.0005	.020	.04	.0065	.0021	.0004	.0095
%RSD	25.31	.6964	1.425	.2061	.2061	37.46	.8026	.1706	19.24
#1	-.0156	.0174	.0314	9.713	20.79	.0128	.2625	.2565	-.0558
#2	-.0224	.0172	.0320	9.684	20.72	.0220	.2595	.2559	-.0425

Sample Name: L34674-10 Acquired: 1/11/2017 16:17:49 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.1351	2.242	2.271
Stddev	.0006	.018	.029
%RSD	.4357	.8019	1.285
#1	.1347	2.254	2.292
#2	.1355	2.229	2.251

Int. Std.	Y_3710
Units	Cts/S
Avg	33143.
Stddev	710.
%RSD	2.1416
#1	32641.
#2	33645.

Sample Name: L34674-14 Acquired: 1/11/2017 16:20:46 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0356	150.7	.0153	.0720	.9258	.0055	-.0475	117.7	.0103
Stddev	.0019	5.9	.0053	.0001	.0017	.0001	.0010	1.1	.0006
%RSD	5.277	3.919	34.49	.1183	.1865	1.391	2.019	.9388	5.785
#1	.0343	146.6	.0191	.0720	.9246	.0054	-.0468	117.0	.0107
#2	.0370	154.9	.0116	.0721	.9270	.0055	-.0481	118.5	.0099

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0166	.0590	.5217	.5380	.2176	159.3	152.3	.0562	28.38
Stddev	.0008	.0006	.0010	.0065	.0023	1.5	2.3	.0161	.07
%RSD	4.530	.9523	.1829	1.214	1.035	.9351	1.493	28.59	.2515
#1	.0172	.0586	.5224	.5334	.2160	158.2	150.7	.0676	28.33
#2	.0161	.0594	.5211	.5426	.2192	160.3	153.9	.0449	28.43

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1465	34.16	4.583	.0458	1.279	.4053	42.91	.0977	1.355
Stddev	.0001	.39	.036	.0005	.002	.0024	.30	.0059	.013
%RSD	.0668	1.143	.7800	1.056	.1364	.5939	.7071	6.043	.9724
#1	.1466	33.88	4.558	.0455	1.280	.4070	43.12	.1018	1.364
#2	.1464	34.44	4.609	.0462	1.277	.4036	42.69	.0935	1.345

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0174	.0374	-.0007	16.05	34.35	.0306	.5144	3.536	-.0565
Stddev	.0113	.0003	.0064	.12	.26	.0028	.0003	.021	.0032
%RSD	64.61	.8290	854.7	.7477	.7477	9.127	.0580	.5863	5.742
#1	-.0095	.0372	-.0053	15.97	34.17	.0286	.5142	3.522	-.0542
#2	-.0254	.0377	.0038	16.14	34.53	.0326	.5146	3.551	-.0588

Sample Name: L34674-14 Acquired: 1/11/2017 16:20:46 Type: Unk
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 101 Custom ID3:
Comment: WG416037

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3864	7.103	7.291
Stddev	.0028	.020	.031
%RSD	.7219	.2856	.4249
#1	.3844	7.117	7.313
#2	.3884	7.089	7.270

Int. Std.	Y_3710
Units	Cts/S
Avg	34058.
Stddev	416.
%RSD	1.2221
#1	33764.
#2	34353.

Sample Name: CCV Acquired: 1/11/2017 16:23:57 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5118	1.088	2.030	1.053	1.007	1.038	1.001	50.48	1.007
Stddev	.0040	.011	.013	.002	.010	.014	.004	.74	.000
%RSD	.7841	1.037	.6187	.1488	.9883	1.309	.4480	1.458	.0026
#1	.5089	1.096	2.022	1.054	1.000	1.028	1.004	49.96	1.007
#2	.5146	1.080	2.039	1.052	1.014	1.048	.9977	51.00	1.007
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.007	.9936	.9936	.9904	1.030	1.079	1.067	1.012	10.00
Stddev	.002	.0046	.0024	.0159	.010	.009	.006	.015	.12
%RSD	.1441	.4673	.2395	1.606	.9279	.8249	.5596	1.481	1.198
#1	1.008	.9969	.9953	.9791	1.023	1.085	1.071	1.002	9.919
#2	1.006	.9903	.9920	1.002	1.037	1.073	1.063	1.023	10.09
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.016	50.23	1.005	1.037	50.13	1.053	2.760	1.967	25.97
Stddev	.006	.74	.016	.000	.37	.007	.001	.015	.08
%RSD	.6300	1.465	1.633	.0332	.7430	.6289	.0304	.7700	.3082
#1	1.011	49.71	.9939	1.037	49.86	1.057	2.759	1.977	26.03
#2	1.020	50.75	1.017	1.037	50.39	1.048	2.760	1.956	25.91
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 16:23:57 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.128	1.014	2.045	10.09	F 21.60	1.033	1.008	1.034	1.991
Stddev	.003	.015	.018	.09	.19	.002	.009	.015	.013
%RSD	.1445	1.426	.8577	.8798	.8798	.1562	.8859	1.407	.6389
#1	2.131	1.004	2.057	10.03	21.46	1.035	1.001	1.024	1.982
#2	2.126	1.024	2.033	10.15	21.73	1.032	1.014	1.044	2.000
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.026	.9986	1.008
Stddev	.017	.0029	.004
%RSD	1.669	.2883	.3454
#1	1.014	1.001	1.010
#2	1.038	.9965	1.006
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	28448.
Stddev	187.
%RSD	.65574
#1	28316.
#2	28580.

Sample Name: CCB Acquired: 1/11/2017 16:26:54 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0023**	**.0020**	**-.0183**	**-.0039**	**-.0003**	**-.0017**	**-.0136**	**-.0289**	**-.0052**
Stddev	.0028	.0025	.0027	.0003	.0005	.0000	.0049	.0050	.0001
%RSD	123.6	125.7	14.63	8.210	138.2	2.821	35.99	17.35	2.214
#1	-.0042	.0038	-.0164	-.0041	-.0000	-.0016	-.0171	-.0253	-.0051
#2	-.0003	.0002	-.0202	-.0037	-.0007	-.0017	-.0101	-.0324	-.0053
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0048**	**-.0049**	**-.0120**	**-.0122**	**-.0017**	**.0037**	**-.0005**	**-.0001**	**.2185**
Stddev	.0007	.0003	.0007	.0008	.0015	.0011	.0047	.0009	.0221
%RSD	13.78	6.420	5.545	6.233	87.45	30.86	865.3	641.5	10.11
#1	-.0043	-.0051	-.0116	-.0116	-.0007	.0029	.0028	-.0008	.2029
#2	-.0053	-.0047	-.0125	-.0127	-.0028	.0045	-.0038	.0005	.2341
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005**	**.1683**	**-.0029**	**-.0026**	**.0312**	**-.0011**	**-.0021**	**-.0154**	**.0514**
Stddev	.0006	.0148	.0003	.0004	.0037	.0009	.0150	.0028	.0020
%RSD	118.1	8.806	10.88	13.38	11.73	76.84	703.8	18.38	3.808
#1	.0001	.1788	-.0027	-.0024	.0337	-.0005	-.0127	-.0174	.0500
#2	.0009	.1579	-.0031	-.0029	.0286	-.0017	.0085	-.0134	.0528
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 16:26:54 Type: QC
Method: 6010B(v67) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0065**	**-.0005**	**.0020**	**-.0047**	**-.0101**	**-.0120**	**-.0007**	**-.0014**	**-.0251**
Stddev	.0021	.0001	.0073	.0050	.0106	.0021	.0001	.0001	.0194
%RSD	31.65	13.50	361.6	104.8	104.8	17.77	12.95	9.840	77.36
#1	-.0079	-.0005	.0072	-.0012	-.0026	-.0135	-.0006	-.0013	-.0114
#2	-.0050	-.0006	-.0032	-.0082	-.0176	-.0105	-.0007	-.0015	-.0389
Check ?	Chk Pass	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	**-.0022**	**-.0072**	**-.0046**
Stddev	.0001	.0006	.0001
%RSD	3.711	7.919	2.436
#1	-.0022	-.0068	-.0045
#2	-.0021	-.0076	-.0047
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**28816.**
Stddev	244.
%RSD	.84735
#1	28643.
#2	28989.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/17

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52056	PCN	Nitric acid:	52052	PCN
Hydrochloric acid:	52208	PCN	Hydrochloric acid:	52395	PCN

VERIFIED BY: GSS 1/3/17

ICP 3050

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-T-846
Group ID: MA-G-ICP_-3050
Method Ref: M6010B
SOP Ref: SOPII012

WG416261

ACZ Laboratories, Inc

Instrument ID: ICP7 8 UEB 1/16/17
Analyst: GSS
ACZ Dept: 33
Create Date: 01/16/2017 13:55
Start Date/Time: 1/16/17 ZP
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	P 30 50	Dilution
1	WG416261ICV	II161203-1			1	✔	1
2	WG416261ICB	NONE			1	✔	1
3	WG416261PQV	II161228-3			1	✔	1
4	WG416261ICSAB	II161206-1			1	✔	1
5	WG415792PBS	NONE			100	✔	100
6	WG415792LCSS2	PCN52708			100	✔	100
7	WG415792LCSSD2	PCN52708			100	✔	100
8	L34674-05	SB-12GT (0-27)			101	✔	505
9	L34674-06	SB-13AL (0-25)			101	✔	505
10	L34674-06SDL	NONE			1	✔	505
11	L34674-09	SB-15AL (0-25)			101	✔	505
12	WG416261CCV	II161221-2			1	✔	1
13	WG416261CCB	NONE			1	✔	1

Y = A
GSS, 1/16/17

Sample	Login Comments
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.

L34674-4 MS + MSD GSS, 1/16/17
1:102X

Report Comments: Spike added to WG, GSS 1/16/17

Internal Comments

AREV: UEB 1/17/17
Initials, Date

SREV: ZP 1/18/17
Initials, Date

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	VEB
Date:	1/17/17
Approved By:	[illegible]
Date:	1-18-17

Work Group:	WG416261
Sample Type:	3050
Analysis Date:	1/16/17
Analyst:	VEB

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	✓		
2) Are all of the QC critera listed in LIMS within specified limits? **		✓	
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
5) Is a current standard/reagent form attached to the workgroup?	✓		
6) Have all dilutions performed at the bench been checked off on the benchsheet?	✓		
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			✓
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?	✓		
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			✓
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
L34674-04MS	P=-902% MSD: P=-99% RPD=39%	M3, RD

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416261

Date Reported: 18-Jan-17
Run ID: R1493152
Date Analyzed: 16-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416261ICV

Tag:

Measured: 1/16/2017 3:41:44 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ALUMINUM	FOUND	2.062	1		mg/L	++	0.03	0.2			
SREV	ALUMINUM	REC	103	1		%	++	0.03	0.2			
SREV	ALUMINUM	RSD	0.1912	1		mg/L	++	0.03	0.15			
SREV	ANTIMONY	FOUND	4.17	1		mg/L	++	0.03	0.2			
SREV	ANTIMONY	REC	104	1		%	++	0.03	0.2			
SREV	ANTIMONY	RSD	1.059	1		mg/L	++	0.03	0.15			
SREV	ARSENIC	FOUND	4.05	1		mg/L	++	0.04	0.2			
SREV	ARSENIC	REC	101	1		%	++	0.04	0.2			
SREV	ARSENIC	RSD	1.725	1		mg/L	++	0.04	0.2			
SREV	BARIUM	FOUND	2.041	1		mg/L	++	0.003	0.02			
SREV	BARIUM	REC	102	1		%	++	0.003	0.02			
SREV	BARIUM	RSD	0.0784	1		mg/L	++	0.003	0.015			
SREV	BERYLLIUM	FOUND	2.061	1		mg/L	++	0.01	0.05			
SREV	BERYLLIUM	REC	103	1		%	++	0.01	0.05			
SREV	BERYLLIUM	RSD	0.2949	1		mg/L	++	0.01	0.05			
SREV	BISMUTH	FOUND	2.006	1		mg/L	++	0.04	0.2			
SREV	BISMUTH	REC	100	1		%	++	0.04	0.2			
SREV	BISMUTH	RSD	0.4663	1		mg/L	++	0.04	0.2			
SREV	BORON	FOUND	2.1	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	105	1		%	++	0.01	0.05			
SREV	BORON	RSD	0.8135	1		mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND	2.015	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND	2.025	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	REC	101	1		%	++	0.005	0.02			
SREV	CADMIUM	REC	101	1		%	++	0.005	0.02			
SREV	CADMIUM	RSD	1.038	1		mg/L	++	0.005	0.015			
SREV	CADMIUM	RSD	0.994	1		mg/L	++	0.005	0.015			
SREV	CALCIUM	FOUND	100.6	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	101	1		%	++	0.1	0.5			
SREV	CALCIUM	RSD	0.0322	1		mg/L	++	0.1	0.5			
SREV	CHROMIUM	FOUND	2.01	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	FOUND	1.969	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	REC	98	1		%	++	0.01	0.05			
SREV	CHROMIUM	REC	101	1		%	++	0.01	0.05			
SREV	CHROMIUM	RSD	1.13	1		mg/L	++	0.01	0.05			
SREV	CHROMIUM	RSD	0.3016	1		mg/L	++	0.01	0.05			
SREV	COBALT	FOUND	2.007	1		mg/L	++	0.01	0.05			
SREV	COBALT	REC	100	1		%	++	0.01	0.05			
SREV	COBALT	RSD	1.022	1		mg/L	++	0.01	0.05			
SREV	COPPER	FOUND	2.039	1		mg/L	++	0.01	0.05			
SREV	COPPER	REC	102	1		%	++	0.01	0.05			
SREV	COPPER	RSD	0.3252	1		mg/L	++	0.01	0.05			
SREV	GALLIUM	FOUND	2.05	1		mg/L	++	0.1	0.5			
SREV	GALLIUM	REC	103	1		%	++	0.1	0.5			
SREV	GALLIUM	RSD	1.523	1		mg/L	++	0.1	0.5			

SREV	IRON	FOUND	2.023	1	mg/L	++	0.02	0.05
SREV	IRON	FOUND	2.023	1	mg/L	++	0.02	0.05
SREV	IRON	REC	101	1	%	++	0.02	0.05
SREV	IRON	REC	101	1	%	++	0.02	0.05
SREV	IRON	RSD	0.7404	1	mg/L	++	0.02	0.05
SREV	IRON	RSD	0.717	1	mg/L	++	0.02	0.05
SREV	LEAD	FOUND	3.952	1	mg/L	++	0.03	0.2
SREV	LEAD	REC	99	1	%	++	0.03	0.2
SREV	LEAD	RSD	1.09	1	mg/L	++	0.03	0.15
SREV	LITHIUM	FOUND	2.06	1	mg/L	++	0.008	0.04
SREV	LITHIUM	REC	103	1	%	++	0.008	0.04
SREV	LITHIUM	RSD	0.0429	1	mg/L	++	0.008	0.04
SREV	MAGNESIUM	FOUND	99.49	1	mg/L	++	0.2	1
SREV	MAGNESIUM	REC	99	1	%	++	0.2	1
SREV	MAGNESIUM	RSD	0.1458	1	mg/L	++	0.2	1
SREV	MANGANESE	FOUND	2.024	1	mg/L	++	0.005	0.03
SREV	MANGANESE	REC	101	1	%	++	0.005	0.03
SREV	MANGANESE	RSD	0.1681	1	mg/L	++	0.005	0.025
SREV	MOLYBDENUM	FOUND	2.083	1	mg/L	++	0.02	0.1
SREV	MOLYBDENUM	REC	104	1	%	++	0.02	0.1
SREV	MOLYBDENUM	RSD	1.291	1	mg/L	++	0.02	0.1
SREV	NICKEL	FOUND	1.987	1	mg/L	++	0.008	0.04
SREV	NICKEL	REC	99	1	%	++	0.008	0.04
SREV	NICKEL	RSD	1.179	1	mg/L	++	0.008	0.04
SREV	PHOSPHORUS	FOUND	5.19	1	mg/L	++	0.1	0.5
SREV	PHOSPHORUS	REC	104	1	%	++	0.1	0.5
SREV	PHOSPHORUS	RSD	1.08	1	mg/L	++	0.1	0.5
SREV	POTASSIUM	FOUND	20.2	1	mg/L	++	0.2	1
SREV	POTASSIUM	REC	101	1	%	++	0.2	1
SREV	POTASSIUM	RSD	0.4589	1	mg/L	++	0.2	1
SREV	SCANDIUM	FOUND	2.04	1	mg/L	++	0.1	0.5
SREV	SCANDIUM	REC	102	1	%	++	0.1	0.5
SREV	SCANDIUM	RSD	0.0922	1	mg/L	++	0.1	0.5
SREV	SELENIUM	FOUND	4.041	1	mg/L	++	0.05	0.3
SREV	SELENIUM	REC	101	1	%	++	0.05	0.3
SREV	SELENIUM	RSD	1.701	1	mg/L	++	0.05	0.25
SREV	SILICA	FOUND	42	1	mg/L	++	0.2	1
SREV	SILICA	REC	98	1	%	++	0.2	1
SREV	SILICA	RSD	0.172	1	mg/L	++	0.214	1.07
SREV	SILVER	FOUND	1.019	1	mg/L	++	0.01	0.03
SREV	SILVER	REC	102	1	%	++	0.01	0.03
SREV	SILVER	RSD	0.8311	1	mg/L	++	0.01	0.025
SREV	SODIUM	FOUND	100.3	1	mg/L	++	0.2	1
SREV	SODIUM	REC	100	1	%	++	0.2	1
SREV	SODIUM	RSD	0.1337	1	mg/L	++	0.2	1
SREV	STRONTIUM	FOUND	2.037	1	mg/L	++	0.005	0.03
SREV	STRONTIUM	REC	102	1	%	++	0.005	0.03
SREV	STRONTIUM	RSD	0.2248	1	mg/L	++	0.005	0.025
SREV	SULFUR	FOUND	49.97	1	mg/L	++	0.3	1
SREV	SULFUR	REC	100	1	%	++	0.3	1
SREV	SULFUR	RSD	1.137	1	mg/L	++	0.25	1.25
SREV	THALLIUM	FOUND	4	1	mg/L	++	0.1	0.5
SREV	THALLIUM	REC	100	1	%	++	0.1	0.5
SREV	THALLIUM	RSD	1.56	1	mg/L	++	0.1	0.5
SREV	TIN	FOUND	2.045	1	mg/L	++	0.04	0.2
SREV	TIN	REC	102	1	%	++	0.04	0.2
SREV	TIN	RSD	1.515	1	mg/L	++	0.04	0.2

SREV	TITANIUM	FOUND	2.028	1		mg/L	++	0.005	0.03
SREV	TITANIUM	REC	101	1		%	++	0.005	0.03
SREV	TITANIUM	RSD	0.1804	1		mg/L	++	0.005	0.025
SREV	VANADIUM	FOUND	2.062	1		mg/L	++	0.005	0.03
SREV	VANADIUM	REC	103	1		%	++	0.005	0.03
SREV	VANADIUM	RSD	0.6049	1		mg/L	++	0.005	0.025
SREV	YTTRIUM	REC	98.21	1		%	++	0.001	0.005
SREV	ZINC	FOUND	1.982	1		mg/L	++	0.01	0.05
SREV	ZINC	FOUND	2.027	1		mg/L	++	0.01	0.05
SREV	ZINC	REC	99	1		%	++	0.01	0.05
SREV	ZINC	REC	101	1		%	++	0.01	0.05
SREV	ZINC	RSD	0.8773	1		mg/L	++	0.01	0.05
SREV	ZINC	RSD	0.7991	1		mg/L	++	0.01	0.05

WG416261ICB

Tag:

Measured: 1/16/2017 3:44:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ALUMINUM	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	BARIUM	FOUND		1	U	mg/L	++	0.003	0.02			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	BISMUTH	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	CHROMIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CHROMIUM	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	COBALT	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	COPPER	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	GALLIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	IRON	FOUND		1	U	mg/L	++	0.02	0.05			
SREV	IRON	FOUND		1	U	mg/L	++	0.02	0.05			
SREV	LEAD	FOUND		1	U	mg/L	++	0.03	0.2			
SREV	LITHIUM	FOUND		1	U	mg/L	++	0.008	0.04			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	MANGANESE	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.02	0.1			
SREV	NICKEL	FOUND		1	U	mg/L	++	0.008	0.04			
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SCANDIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.05	0.3			
SREV	SILICA	FOUND		1	U	mg/L	++	0.2	1			
SREV	SILVER	FOUND		1	U	mg/L	++	0.01	0.03			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	STRONTIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	SULFUR	FOUND		1	U	mg/L	++	0.3	1			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	TIN	FOUND		1	U	mg/L	++	0.04	0.2			
SREV	TITANIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	VANADIUM	FOUND		1	U	mg/L	++	0.005	0.03			
SREV	YTTRIUM	REC	100.18	1		%	++	0.001	0.005			
SREV	ZINC	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	ZINC	FOUND		1	U	mg/L	++	0.01	0.05			

WG416261PQV

Tag: Measured: 1/16/2017 3:47:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	0.51	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	102	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	100.17	1		%	++	0.001	0.005			

WG416261ICSAB

Tag: Measured: 1/16/2017 3:51:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	4.99	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	100	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	99.35	1		%	++	0.001	0.005			

WG415792PBS

Tag: 1 Measured: 1/16/2017 3:57:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		100	U	mg/Kg	++	10	50			
SREV	YTTRIUM	REC	96.93	100		%	++	0.001	0.005			

WG415792LCSS2

Tag: 1 Measured: 1/16/2017 4:00:38 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	701	100		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	83	100		%	++	10	50			
SREV	YTTRIUM	REC	106.27	100		%	++	0.001	0.005			

WG415792LCSSD

Tag: 1 Measured: 1/16/2017 4:03:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	708	100		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	84	100		%	++	10	50			
SREV	PHOSPHORUS	RPD	1	100		%	++	10	50			
SREV	YTTRIUM	REC	107.45	100		%	++	0.001	0.005			

L34674-04

Tag: 2 Measured: 1/16/2017 4:06:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	2230	102		mg/Kg	++	10	50		M3 RD	
NEED	YTTRIUM	REC	111	102		%	++	0.001	0.005			

L34674-04MS

Tag: Measured: 1/16/2017 4:09:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	3149	102		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	902	102		%	ALRT	10	50		M3	
SREV	YTTRIUM	REC	111.63	102		%	++	0.001	0.005			

L34674-04MSD

Tag: Measured: 1/16/2017 4:12:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	2129	102		mg/Kg	++	10	50			
SREV	PHOSPHORUS	REC	-99	102		%	ALRT	10	50		M3	
SREV	PHOSPHORUS	RPD	39	102		%	ALRT	10	50		RD	
SREV	YTTRIUM	REC	109.24	102		%	++	0.001	0.005			

L34674-05

Tag: 2 Measured: 1/16/2017 4:16:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	21400	505		mg/Kg	++	50	300		M2 RD	
NEED	YTTRIUM	REC	108	505		%	++	0.001	0.005			

L34674-06

Tag: 2 Measured: 1/16/2017 4:19:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	17500	505		mg/Kg	++	50	300		M3 RD	
NEED	YTTRIUM	REC	109	505		%	++	0.001	0.005			

L34674-06SDL

Tag: Measured: 1/16/2017 4:22:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	D	7	505		%	++	50	300			
SREV	PHOSPHORUS	FOUND	3743	505		mg/Kg	++	50	300			
SREV	PHOSPHORUS	REG	18715	505		mg/Kg	++	50	300			
SREV	YTTRIUM	REC	103.52	505		%	++	0.001	0.005			

L34674-09

Tag: 2 Measured: 1/16/2017 4:25:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	P-3050	3820	505		mg/Kg	++	50	300		M3 RD	
NEED	YTTRIUM	REC	107	505		%	++	0.001	0.005			

WG416261CCV

Tag: Measured: 1/16/2017 4:28:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND	2.63	1		mg/L	++	0.1	0.5			
SREV	PHOSPHORUS	REC	105	1		%	++	0.1	0.5			
SREV	YTTRIUM	REC	99.69	1		%	++	0.001	0.005			

WG416261CCB

Tag: Measured: 1/16/2017 4:31:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PHOSPHORUS	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	YTTRIUM	REC	100.27	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/16/2017 15:29:15 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0002**	**-.0002**	**.0000**	**.0001**	**.0031**	**-.0045**	**.0001**	**-.0060**	**-.0001**
Stddev	.0000	.0001	.0000	.0000	.0003	.0002	.0000	.0001	.0000
%RSD	15.45	31.47	42.22	28.60	9.772	4.803	11.16	1.422	9.930
#1	-.0002	-.0003	.0000	.0001	.0033	-.0044	.0001	-.0060	-.0001
#2	-.0002	-.0002	.0000	.0001	.0028	-.0047	.0001	-.0061	-.0001

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**-.0000**	**-.0000**	**.0000**	**.0003**	**.0001**	**.0002**	**.0001**	**.0042**
Stddev	.0000	.0000	.0000	.0000	.0003	.0000	.0000	.0000	.0000
%RSD	29.28	157.5	110.0	45.32	94.38	2.514	17.76	29.19	.9588
#1	.0001	.0000	-.0000	.0000	.0001	.0001	.0002	.0001	.0042
#2	.0000	-.0000	-.0000	.0000	.0005	.0001	.0002	.0001	.0043

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0023**	**-.0001**	**.0001**	**.0000**	**.0068**	**.0000**	**.0000**	**.0000**	**.0001**
Stddev	.0004	.0001	.0000	.0000	.0004	.0000	.0000	.0000	.0000
%RSD	16.66	58.58	1.957	28.31	5.808	74.56	347.9	23.57	23.91
#1	-.0020	-.0001	.0001	.0000	.0071	.0000	.0000	.0000	.0001
#2	-.0026	-.0001	.0001	.0000	.0065	.0000	-.0000	.0000	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0005**	**.0000**	**.0005**	**.0005**	**.0000**	**.0003**	**.0002**	**-.0000**
Stddev	.0000	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	.6599	24.24	63.07	1.717	1.717	104.9	5.330	2.793	47.40
#1	.0000	.0006	.0000	.0005	.0005	.0000	.0003	.0002	-.0000
#2	.0000	.0004	.0000	.0005	.0005	.0000	.0003	.0002	-.0000

Sample Name: Blank Acquired: 1/16/2017 15:29:15 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**-.0004**	**-.0001**	**.0001**
Stddev	.0000	.0000	.0000
%RSD	5.460	31.70	50.06
#1	-.0004	-.0000	.0001
#2	-.0004	-.0001	.0000

Int. Std.	Y_3710
Units	Cts/S
Avg	**15722.**
Stddev	127.
%RSD	.80816
#1	15812.
#2	15632.

Sample Name: WG415792PBS Acquired: 1/16/2017 15:57:26 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 100 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002	-.0026	-.0526	-.0031	-.0034	-.0049	-.0131	-.0590	-.0070
Stddev	.0039	.0019	.0146	.0005	.0003	.0002	.0356	.0050	.0009
%RSD	1612.	75.74	27.70	17.49	8.923	3.292	270.5	8.484	13.41
#1	-.0025	-.0012	-.0629	-.0027	-.0037	-.0048	.0120	-.0625	-.0063
#2	.0030	-.0039	-.0423	-.0035	-.0032	-.0050	-.0383	-.0554	-.0077

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0062	-.0037	-.0120	-.0154	-.0051	-.0032	-.0121	.0341	.2017
Stddev	.0004	.0027	.0005	.0005	.0052	.0018	.0000	.0139	.0410
%RSD	5.806	72.92	3.977	3.300	101.6	56.24	.2877	40.72	20.30
#1	-.0065	-.0057	-.0117	-.0150	-.0088	-.0045	-.0121	.0439	.1728
#2	-.0060	-.0018	-.0123	-.0157	-.0014	-.0019	-.0121	.0243	.2307

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0031	.1295	-.0075	-.0033	.0165	.0015	.0107	-.0199	.0384
Stddev	.0004	.0332	.0002	.0031	.0058	.0007	.0316	.0010	.0415
%RSD	13.17	25.67	3.254	92.69	35.27	49.25	294.5	5.261	107.9
#1	-.0034	.1060	-.0077	-.0055	.0124	.0020	.0331	-.0192	.0091
#2	-.0028	.1530	-.0074	-.0011	.0206	.0010	-.0116	-.0207	.0678

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0028	-.0064	-.0229	-.0092	-.0197	.0240	-.0049	-.0038	-.0305
Stddev	.0068	.0001	.0158	.0052	.0111	.0088	.0000	.0001	.0077
%RSD	240.3	1.238	68.88	56.58	56.58	36.76	.5152	3.336	25.27
#1	.0020	-.0064	-.0340	-.0129	-.0275	.0178	-.0049	-.0037	-.0359
#2	-.0076	-.0063	-.0117	-.0055	-.0118	.0302	-.0049	-.0039	-.0250

Sample Name: WG415792PBS Acquired: 1/16/2017 15:57:26 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 100 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0026	-.0058	-.0036
Stddev	.0018	.0005	.0003
%RSD	69.81	8.638	7.080
#1	-.0039	-.0055	-.0034
#2	-.0013	-.0062	-.0038

Int. Std.	Y_3710
Units	Cts/S
Avg	15240.
Stddev	2.
%RSD	.01126
#1	15238.
#2	15241.

Sample Name: L34674-06SDL Acquired: 1/16/2017 16:22:15 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 505 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002	4.165	-.0089	-.0016	.0172	-.0045	-.0192	17.20	-.0051
Stddev	.0008	.010	.0008	.0032	.0001	.0001	.0261	.05	.0002
%RSD	321.7	.2294	9.371	204.6	.4050	1.206	136.1	.3042	4.249
#1	.0008	4.158	-.0095	.0007	.0172	-.0045	-.0376	17.24	-.0052
#2	-.0003	4.172	-.0083	-.0039	.0171	-.0045	-.0007	17.16	-.0049

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0038	-.0024	.0515	.0449	.0014	5.065	5.053	.0163	1.136
Stddev	.0008	.0038	.0028	.0002	.0018	.010	.020	.0095	.018
%RSD	22.10	159.9	5.494	.5488	130.7	.2026	.3997	58.65	1.597
#1	-.0032	.0003	.0495	.0451	.0001	5.072	5.067	.0095	1.149
#2	-.0044	-.0051	.0535	.0448	.0027	5.058	5.039	.0230	1.123

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011	.7592	.1420	-.0034	.1809	.0371	7.412	-.0151	.2157
Stddev	.0002	.0137	.0001	.0018	.0087	.0022	.006	.0070	.0077
%RSD	16.49	1.810	.0474	53.13	4.797	5.900	.0786	46.48	3.569
#1	.0012	.7494	.1420	-.0046	.1748	.0386	7.416	-.0101	.2102
#2	.0010	.7689	.1419	-.0021	.1871	.0355	7.408	-.0200	.2211

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0071	-.0054	-.0310	.8383	1.794	-.0149	.0593	.0567	-.0111
Stddev	.0017	.0000	.0050	.0012	.003	.0107	.0005	.0013	.0171
%RSD	24.46	.3341	16.04	.1391	.1391	71.58	.9240	2.297	154.0
#1	-.0059	-.0055	-.0345	.8375	1.792	-.0074	.0597	.0577	.0010
#2	-.0083	-.0054	-.0274	.8391	1.796	-.0225	.0589	.0558	-.0232

Sample Name: L34674-06SDL Acquired: 1/16/2017 16:22:15 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 505 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0209	.1472	.1490
Stddev	.0003	.0024	.0008
%RSD	1.290	1.655	.5259
#1	.0211	.1489	.1485
#2	.0208	.1455	.1496

Int. Std.	Y_3710
Units	Cts/S
Avg	16275.
Stddev	112.
%RSD	.68623
#1	16354.
#2	16196.

Sample Name: CalStd-1 Acquired: 1/16/2017 15:32:26 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0187	.1069	.0034	.0223	2.786	1.315	.0048	.0344	.0471
Stddev	.0002	.0002	.0000	.0001	.001	.002	.0000	.0001	.0002
%RSD	.9814	.2224	.1402	.4819	.0290	.1577	.3317	.1512	.4929
#1	.0186	.1071	.0034	.0224	2.785	1.316	.0048	.0344	.0473
#2	.0188	.1067	.0034	.0223	2.786	1.313	.0049	.0344	.0470

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0419	.0147	.0511	.0698	.0405	.0326	.0854	.0029	.1054
Stddev	.0002	.0001	.0002	.0001	.0002	.0003	.0000	.0001	.0001
%RSD	.5564	.6415	.4874	.1158	.4971	.8619	.0359	3.676	.0834
#1	.0421	.0147	.0513	.0699	.0406	.0324	.0854	.0028	.1055
#2	.0417	.0146	.0509	.0698	.0403	.0328	.0854	.0030	.1054

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.6007	.0169	.2035	.0111	.0983	.0030	.0073	.0029	.0021
Stddev	.0004	.0000	.0008	.0001	.0000	.0000	.0001	.0000	.0000
%RSD	.0724	.2713	.3812	.7025	.0218	1.304	1.044	1.501	.2289
#1	.6004	.0169	.2030	.0112	.0983	.0030	.0073	.0029	.0021
#2	.6010	.0168	.2041	.0111	.0983	.0029	.0072	.0029	.0021

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.6488	.0035	.0302	.0302	.0057	1.985	.0720	.0077	.0166
Stddev	.0001	.0001	.0000	.0000	.0000	.005	.0004	.0000	.0001
%RSD	.0185	2.117	.0949	.0949	.2114	.2310	.5985	.3797	.7976
#1	.6489	.0035	.0301	.0301	.0057	1.988	.0723	.0077	.0167
#2	.6487	.0034	.0302	.0302	.0057	1.981	.0717	.0077	.0165

Sample Name: CalStd-1 Acquired: 1/16/2017 15:32:26 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0167	.0252
Stddev	.0001	.0002
%RSD	.5064	.7033
#1	.0167	.0254
#2	.0166	.0251

Int. Std.	Y_3710
Units	Cts/S
Avg	15793.
Stddev	58.
%RSD	.36565
#1	15833.
#2	15752.

Sample Name: CalStd-2 Acquired: 1/16/2017 15:35:32 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0374	.2114	.0068	.0441	5.511	2.597	.0095	.0731	.0924
Stddev	.0002	.0007	.0001	.0002	.005	.008	.0001	.0006	.0006
%RSD	.6430	.3081	1.422	.4785	.0978	.3189	1.205	.7893	.6021
#1	.0376	.2118	.0067	.0440	5.514	2.603	.0094	.0735	.0920
#2	.0373	.2109	.0069	.0443	5.507	2.591	.0096	.0727	.0928

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0823	.0288	.1007	.1364	.0789	.0640	.1670	.0056	.2017
Stddev	.0004	.0000	.0005	.0002	.0005	.0000	.0001	.0001	.0001
%RSD	.5457	.0354	.5167	.1770	.5915	.0105	.0575	1.819	.0498
#1	.0820	.0288	.1004	.1366	.0792	.0640	.1670	.0057	.2018
#2	.0826	.0288	.1011	.1362	.0785	.0640	.1669	.0055	.2017

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.194	.0335	.3980	.0219	.1876	.0059	.0142	.0055	.0040
Stddev	.001	.0001	.0003	.0001	.0002	.0001	.0001	.0000	.0000
%RSD	.1122	.3882	.0782	.5987	.0957	1.113	.3735	.8874	1.131
#1	1.193	.0336	.3982	.0218	.1877	.0058	.0142	.0056	.0039
#2	1.195	.0334	.3977	.0220	.1874	.0059	.0143	.0055	.0040

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.274	.0067	.0589	.0589	.0111	3.912	.1413	.0152	.0329
Stddev	.002	.0000	.0001	.0001	.0001	.009	.0005	.0000	.0000
%RSD	.1693	.6246	.2414	.2414	.7796	.2276	.3632	.1852	.0338
#1	1.275	.0067	.0588	.0588	.0111	3.918	.1417	.0152	.0329
#2	1.272	.0067	.0590	.0590	.0112	3.905	.1410	.0153	.0329

Sample Name: CalStd-2 Acquired: 1/16/2017 15:35:32 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0325	.0496
Stddev	.0002	.0003
%RSD	.5183	.5178
#1	.0324	.0494
#2	.0327	.0498

Int. Std.	Y_3710
Units	Cts/S
Avg	15811.
Stddev	133.
%RSD	.83846
#1	15904.
#2	15717.

Sample Name: CalStd-3 Acquired: 1/16/2017 15:38:34 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.556	2.054	.3436	9.289	.0205	.0560
Stddev	.000	.003	.0001	.011	.0001	.0003
%RSD	.0072	.1275	.0271	.1128	.6684	.4493
#1	1.556	2.052	.3437	9.296	.0204	.0558
#2	1.556	2.056	.3435	9.281	.0206	.0562

Int. Std.	Y_3710
Units	Cts/S
Avg	15229.
Stddev	83.
%RSD	.54386
#1	15287.
#2	15170.

Sample Name: ICV Acquired: 1/16/2017 15:41:44 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.019**	**2.062**	**4.050**	**2.100**	**2.041**	**2.061**	**2.006**	**100.6**	**2.015**
Stddev	.009	.004	.070	.017	.002	.006	.009	.0	.021
%RSD	.8311	.1912	1.725	.8135	.0784	.2949	.4663	.0322	1.038
#1	1.025	2.064	4.001	2.088	2.042	2.065	1.999	100.6	2.000
#2	1.013	2.059	4.100	2.112	2.040	2.057	2.012	100.6	2.029
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.025**	**2.007**	**2.010**	**1.969**	**2.039**	**2.023**	**2.023**	**2.046**	**20.20**
Stddev	.020	.021	.023	.006	.007	.015	.015	.031	.09
%RSD	.9940	1.022	1.130	.3016	.3252	.7404	.7170	1.523	.4589
#1	2.011	1.992	1.994	1.974	2.043	2.013	2.013	2.068	20.26
#2	2.040	2.021	2.026	1.965	2.034	2.034	2.033	2.024	20.13
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.060**	**99.49**	**2.024**	**2.083**	**100.3**	**1.987**	**5.185**	**3.952**	**49.97**
Stddev	.001	.14	.003	.027	.1	.023	.056	.043	.57
%RSD	.0429	.1458	.1681	1.291	.1337	1.179	1.080	1.090	1.137
#1	2.061	99.60	2.021	2.064	100.4	1.971	5.145	3.922	49.57
#2	2.060	99.39	2.026	2.102	100.2	2.004	5.224	3.983	50.37
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICV Acquired: 1/16/2017 15:41:44 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.170**	**2.044**	**4.041**	**19.63**	F **42.00**	**2.045**	**2.037**	**2.028**	**4.000**
Stddev	.044	.002	.069	.03	.07	.031	.005	.004	.062
%RSD	1.059	.0922	1.701	.1720	.1720	1.515	.2248	.1804	1.560
#1	4.138	2.046	3.992	19.60	41.95	2.023	2.040	2.025	3.956
#2	4.201	2.043	4.090	19.65	42.05	2.067	2.034	2.030	4.045
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					20.00				
Range					5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**2.062**	**1.982**	**2.027**
Stddev	.013	.016	.018
%RSD	.6049	.7991	.8773
#1	2.071	1.971	2.015
#2	2.053	1.993	2.040
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**15441.**
Stddev	101.
%RSD	.65495
#1	15512.
#2	15369.

Sample Name: ICB Acquired: 1/16/2017 15:44:46 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0034	-.0188	-.0150	-.0100	-.0028	-.0040	-.0038	-.0063	-.0068
Stddev	.0021	.0029	.0139	.0004	.0002	.0000	.0035	.0111	.0006
%RSD	63.28	15.26	92.53	3.685	7.918	.3656	91.30	175.9	9.483
#1	.0049	-.0168	-.0052	-.0098	-.0030	-.0040	-.0063	-.0142	-.0072
#2	.0019	-.0208	-.0248	-.0103	-.0027	-.0040	-.0013	.0015	-.0063
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0051	-.0031	-.0100	-.0143	-.0092	-.0147	-.0181	.0251	.1539
Stddev	.0004	.0003	.0013	.0032	.0004	.0063	.0011	.0049	.0179
%RSD	7.472	10.31	12.95	22.37	4.845	42.92	6.191	19.36	11.63
#1	-.0048	-.0034	-.0109	-.0120	-.0089	-.0102	-.0189	.0285	.1412
#2	-.0053	-.0029	-.0091	-.0165	-.0095	-.0191	-.0173	.0217	.1665
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0013	.1356	-.0067	-.0032	.0515	-.0017	-.0138	-.0054	.0734
Stddev	.0001	.0066	.0002	.0016	.0046	.0023	.0145	.0026	.0292
%RSD	9.640	4.892	3.557	49.84	8.962	141.3	105.0	47.64	39.71
#1	-.0014	.1309	-.0065	-.0021	.0483	-.0000	-.0240	-.0036	.0528
#2	-.0012	.1403	-.0069	-.0043	.0548	-.0033	-.0035	-.0073	.0940
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/16/2017 15:44:46 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0107	-.0055	-.0377	-.0011	-.0023	-.0180	-.0040	-.0026	-.0264
Stddev	.0037	.0003	.0205	.0080	.0170	.0073	.0001	.0003	.0081
%RSD	34.73	5.764	54.35	742.4	742.4	40.43	2.383	12.58	30.60
#1	.0081	-.0057	-.0232	.0046	.0098	-.0231	-.0040	-.0029	-.0207
#2	.0133	-.0053	-.0522	-.0067	-.0143	-.0128	-.0039	-.0024	-.0321
Check ?	Chk Pass	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	.0002	-.0057	-.0055
Stddev	.0008	.0020	.0008
%RSD	388.2	34.56	15.13
#1	-.0004	-.0071	-.0049
#2	.0008	-.0043	-.0061
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	15751.
Stddev	31.
%RSD	.19520
#1	15773.
#2	15729.

Sample Name: PQV Acquired: 1/16/2017 15:47:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0298	.1457	.1905	.0475	.0127	.0483	.1757	.5422	F .0089
Stddev	.0009	.0075	.0242	.0055	.0000	.0002	.0199	.0020	.0002
%RSD	2.962	5.119	12.68	11.54	.3713	.4152	11.32	.3706	1.842
#1	.0304	.1510	.1734	.0513	.0127	.0485	.1898	.5407	.0088
#2	.0292	.1405	.2075	.0436	.0128	.0482	.1617	.5436	.0091
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value									.0150
Range									-30.55%

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0112	.0528	.0435	.0355	.0483	.0384	F .0313	.5600	1.183
Stddev	.0008	.0010	.0011	.0027	.0028	.0017	.0002	.0117	.004
%RSD	7.500	1.967	2.447	7.614	5.795	4.348	.7051	2.093	.3121
#1	.0118	.0535	.0443	.0336	.0503	.0372	.0311	.5517	1.186
#2	.0107	.0520	.0428	.0374	.0464	.0396	.0315	.5683	1.181
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass
Value							.0500		
Range							-30.55%		

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0407	1.182	.0195	.1039	1.073	.0440	.5095	.1366	1.368
Stddev	.0002	.000	.0001	.0016	.001	.0000	.0335	.0149	.010
%RSD	.4911	.0159	.5885	1.585	.0659	.0510	6.568	10.94	.7416
#1	.0406	1.182	.0196	.1050	1.073	.0440	.4858	.1260	1.361
#2	.0409	1.183	.0194	.1027	1.072	.0440	.5332	.1471	1.375
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: PQV Acquired: 1/16/2017 15:47:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1396	.5210	.2292	.5214	F 1.116	.2049	.0219	.0231	.5139
Stddev	.0042	.0001	.0130	.0042	.009	.0033	.0001	.0000	.0032
%RSD	3.042	.0100	5.668	.8007	.8007	1.628	.6057	.1980	.6231
#1	.1366	.5211	.2384	.5185	1.110	.2073	.0220	.0231	.5116
#2	.1426	.5210	.2200	.5244	1.122	.2026	.0218	.0231	.5161
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0258	.0498	.0505
Stddev	.0010	.0013	.0021
%RSD	3.776	2.700	4.240
#1	.0265	.0488	.0490
#2	.0251	.0507	.0520
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15749.
Stddev	86.
%RSD	.54308
#1	15809.
#2	15688.

Sample Name: ICSAB Acquired: 1/16/2017 15:51:09 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5053	254.3	5.082	.5027	.2479	.2425	.4749	243.1	.4751
Stddev	.0015	.2	.018	.0013	.0001	.0007	.0161	.0	.0000
%RSD	.2916	.0635	.3510	.2505	.0517	.2963	3.381	.0135	.0004
#1	.5063	254.4	5.069	.5036	.2480	.2420	.4636	243.2	.4751
#2	.5043	254.2	5.094	.5019	.2478	.2430	.4863	243.1	.4751
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4796	.2367	.2410	.2252	.2453	96.22	96.14	.4976	25.09
Stddev	.0010	.0007	.0020	.0023	.0037	.10	.02	.0400	.04
%RSD	.2142	.2903	.8473	1.030	1.523	.0993	.0234	8.035	.1509
#1	.4789	.2362	.2395	.2235	.2426	96.15	96.15	.4693	25.11
#2	.4803	.2371	.2424	.2268	.2479	96.29	96.12	.5258	25.06
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5173	247.9	.2380	.4907	24.92	.4748	4.993	.4428	2.559
Stddev	.0003	.1	.0013	.0042	.04	.0009	.009	.0018	.058
%RSD	.0581	.0524	.5557	.8485	.1779	.1824	.1737	.4099	2.274
#1	.5175	247.8	.2370	.4877	24.95	.4755	4.987	.4441	2.600
#2	.5171	248.0	.2389	.4936	24.89	.4742	5.000	.4415	2.518
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/16/2017 15:51:09 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5176	.5077	4.990	2.561	F 5.480	2.428	.4968	.5003	2.389
Stddev	.0145	.0004	.003	.006	.013	.024	.0009	.0002	.026
%RSD	2.805	.0721	.0500	.2281	.2281	.9807	.1839	.0340	1.079
#1	.5279	.5074	4.992	2.557	5.471	2.445	.4974	.5002	2.408
#2	.5073	.5080	4.988	2.565	5.489	2.411	.4961	.5004	2.371
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2429	.4778	.5013
Stddev	.0022	.0037	.0009
%RSD	.8991	.7725	.1779
#1	.2444	.4752	.5007
#2	.2413	.4804	.5020
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15620.
Stddev	146.
%RSD	.93234
#1	15723.
#2	15517.

Sample Name: WASH Acquired: 1/16/2017 15:54:15 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004	.0645	-.0263	-.0100	-.0036	-.0048	.0003	.0259	-.0075
Stddev	.0031	.0187	.0131	.0072	.0001	.0001	.0061	.0000	.0004
%RSD	728.7	28.96	49.66	72.45	4.177	1.512	2235.	.0078	5.427
#1	-.0017	.0513	-.0356	-.0049	-.0037	-.0047	-.0040	.0259	-.0072
#2	.0026	.0777	-.0171	-.0151	-.0035	-.0048	.0046	.0259	-.0078
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0061	-.0053	-.0107	-.0145	-.0063	.0222	.0165	.0274	.1525
Stddev	.0006	.0009	.0026	.0027	.0002	.0056	.0016	.0163	.0052
%RSD	9.955	16.04	24.60	18.49	3.233	25.16	9.947	59.45	3.411
#1	-.0056	-.0059	-.0126	-.0164	-.0065	.0262	.0153	.0159	.1561
#2	-.0065	-.0047	-.0089	-.0126	-.0062	.0183	.0176	.0390	.1488
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0024	.2044	-.0057	-.0036	.0224	.0007	-.0367	-.0184	.0558
Stddev	.0014	.0144	.0003	.0041	.0032	.0020	.0005	.0050	.0259
%RSD	59.55	7.061	5.460	114.2	14.26	288.9	1.348	27.13	46.51
#1	-.0014	.2146	-.0055	-.0065	.0247	-.0007	-.0363	-.0148	.0374
#2	-.0035	.1942	-.0059	-.0007	.0201	.0021	-.0370	-.0219	.0741
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/16/2017 15:54:15 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0008	-.0062	-.0345	-.0131	-.0280	-.0118	-.0047	-.0034	-.0409
Stddev	.0074	.0000	.0093	.0034	.0073	.0128	.0001	.0013	.0084
%RSD	981.6	.5139	27.06	26.00	26.00	109.2	1.883	37.37	20.50
#1	.0045	-.0062	-.0411	-.0107	-.0229	-.0208	-.0046	-.0043	-.0350
#2	-.0060	-.0061	-.0279	-.0155	-.0332	-.0027	-.0047	-.0025	-.0469
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0016	-.0064	-.0047
Stddev	.0008	.0014	.0000
%RSD	47.32	22.58	.4526
#1	-.0021	-.0054	-.0046
#2	-.0011	-.0074	-.0047
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15609.
Stddev	114.
%RSD	.72787
#1	15689.
#2	15529.

Sample Name: WG415792LCSS2 Acquired: 1/16/2017 16:00:38 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0549**	**181.0**	**.8999**	**.0650**	**1.839**	**.0053**	**.0023**	**146.5**	**.4607**
Stddev	.0021	.1	.0031	.0021	.004	.0001	.0293	.1	.0008
%RSD	3.769	.0380	.3419	3.274	.2014	2.016	1303.	.0528	.1650
#1	.0534	181.0	.9021	.0635	1.842	.0053	-.0185	146.4	.4602
#2	.0564	181.1	.8977	.0665	1.836	.0052	.0230	146.6	.4612

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4624**	**.0695**	**.2140**	**.1827**	**1.189**	**195.0**	**193.3**	**.0824**	**44.65**
Stddev	.0012	.0030	.0043	.0015	.002	.1	.1	.0283	.01
%RSD	.2518	4.328	2.022	.7983	.1534	.0329	.0566	34.27	.0115
#1	.4632	.0716	.2110	.1816	1.188	195.1	193.2	.1024	44.65
#2	.4616	.0674	.2171	.1837	1.190	195.0	193.4	.0625	44.65

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1413**	**61.95**	**4.769**	**.0048**	**1.501**	**.1581**	**7.011**	**11.91**	**3.143**
Stddev	.0006	.07	.002	.0013	.004	.0011	.025	.02	.042
%RSD	.4256	.1076	.0481	26.97	.2569	.6719	.3635	.1687	1.324
#1	.1417	61.90	4.770	.0057	1.504	.1589	6.992	11.90	3.173
#2	.1409	62.00	4.767	.0039	1.498	.1574	7.029	11.93	3.114

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0557**	**.0294**	**-.0267**	**21.69**	**46.42**	**.0494**	**.3538**	**5.047**	**-.0077**
Stddev	.0152	.0002	.0021	.01	.02	.0028	.0005	.002	.0148
%RSD	27.33	.6787	7.886	.0364	.0364	5.593	.1302	.0334	192.9
#1	.0665	.0295	-.0252	21.70	46.44	.0474	.3542	5.046	-.0182
#2	.0450	.0292	-.0282	21.69	46.41	.0513	.3535	5.048	.0028

Sample Name: WG415792LCSS2 Acquired: 1/16/2017 16:00:38 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3979	3.383	3.478
Stddev	.0007	.000	.008
%RSD	.1667	.0032	.2338
#1	.3974	3.383	3.472
#2	.3984	3.383	3.484

Int. Std.	Y_3710
Units	Cts/S
Avg	16708.
Stddev	8.
%RSD	.04794
#1	16714.
#2	16702.

Sample Name: WG415792LCSSD2 Acquired: 1/16/2017 16:03:42 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0436**	**183.0**	**.9112**	**.0670**	**1.871**	**.0056**	**.0021**	**148.9**	**.4715**
Stddev	.0025	.0	.0019	.0060	.003	.0000	.0065	.3	.0010
%RSD	5.763	.0171	.2046	9.022	.1457	.5986	312.6	.2203	.2035
#1	.0418	183.0	.9125	.0713	1.873	.0056	-.0025	148.7	.4708
#2	.0453	183.1	.9098	.0627	1.869	.0056	.0067	149.2	.4722

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4708**	**.0672**	**.2218**	**.1905**	**1.227**	**196.9**	**195.8**	**.0949**	**45.16**
Stddev	.0036	.0014	.0019	.0015	.002	.3	.1	.0181	.06
%RSD	.7586	2.146	.8736	.7958	.1282	.1393	.0592	19.08	.1242
#1	.4683	.0662	.2205	.1895	1.226	196.7	195.7	.0821	45.20
#2	.4734	.0683	.2232	.1916	1.228	197.1	195.9	.1077	45.12

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1440**	**62.86**	**4.841**	**.0054**	**1.521**	**.1593**	**7.079**	**12.16**	**3.245**
Stddev	.0004	.22	.007	.0014	.004	.0002	.054	.08	.026
%RSD	.2954	.3444	.1392	25.52	.2708	.1215	.7594	.6221	.8165
#1	.1443	62.70	4.837	.0044	1.524	.1592	7.041	12.10	3.226
#2	.1437	63.01	4.846	.0064	1.518	.1594	7.117	12.21	3.264

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0584**	**.0292**	**-.0069**	**21.58**	**46.17**	**.0569**	**.3590**	**5.072**	**.0012**
Stddev	.0290	.0001	.0163	.05	.11	.0071	.0001	.002	.0067
%RSD	49.68	.3451	236.3	.2363	.2363	12.45	.0202	.0332	569.3
#1	.0789	.0291	.0046	21.54	46.10	.0519	.3590	5.073	.0060
#2	.0379	.0293	-.0184	21.61	46.25	.0619	.3589	5.070	-.0036

Sample Name: WG415792LCSSD2 Acquired: 1/16/2017 16:03:42 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: PCN52708 Custom ID2: 100 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4011	3.422	3.522
Stddev	.0006	.022	.030
%RSD	.1438	.6548	.8504
#1	.4007	3.407	3.500
#2	.4015	3.438	3.543

Int. Std.	Y_3710
Units	Cts/S
Avg	16894.
Stddev	65.
%RSD	.38305
#1	16940.
#2	16849.

Sample Name: L34674-04 Acquired: 1/16/2017 16:06:47 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 102 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0063	239.4	.0471	.0504	1.563	.0058	-.0144	77.53	.0057
Stddev	.0033	.2	.0292	.0053	.001	.0001	.0194	.09	.0006
%RSD	52.10	.0820	62.01	10.57	.0776	.9342	135.1	.1193	9.933
#1	-.0040	239.5	.0265	.0466	1.563	.0059	-.0281	77.46	.0061
#2	-.0087	239.3	.0678	.0541	1.562	.0058	-.0006	77.60	.0053

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056	.0764	.3228	.2903	.2127	205.5	204.3	.0515	29.64
Stddev	.0006	.0013	.0013	.0008	.0022	.2	.0	.0059	.04
%RSD	11.46	1.650	.3912	.2917	1.032	.1216	.0148	11.48	.1218
#1	.0052	.0755	.3219	.2909	.2111	205.3	204.3	.0556	29.66
#2	.0061	.0772	.3237	.2897	.2142	205.7	204.3	.0473	29.61

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2196	49.42	7.768	.0463	.9797	.3241	21.87	.0924	1.067
Stddev	.0002	.09	.001	.0036	.0018	.0001	.03	.0110	.023
%RSD	.0747	.1815	.0084	7.710	.1843	.0443	.1376	11.89	2.122
#1	.2195	49.35	7.768	.0488	.9784	.3240	21.85	.1002	1.051
#2	.2197	49.48	7.769	.0438	.9810	.3242	21.89	.0847	1.083

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0174	.0450	-.0333	21.61	46.24	.0292	.3181	4.945	-.0379
Stddev	.0038	.0001	.0010	.04	.09	.0064	.0003	.006	.0088
%RSD	21.76	.2621	3.058	.1839	.1839	21.99	.0933	.1154	23.14
#1	-.0201	.0451	-.0326	21.58	46.18	.0246	.3183	4.941	-.0317
#2	-.0148	.0449	-.0340	21.64	46.30	.0337	.3179	4.949	-.0441

Sample Name: L34674-04 Acquired: 1/16/2017 16:06:47 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 102 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.3682	8.829	8.934
Stddev	.0029	.005	.021
%RSD	.7991	.0610	.2333
#1	.3661	8.825	8.919
#2	.3703	8.832	8.949

Int. Std.	Y_3710
Units	Cts/S
Avg	17515.
Stddev	18.
%RSD	.10500
#1	17502.
#2	17528.

Sample Name: L34674-04MS Acquired: 1/16/2017 16:09:53 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 102 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4338	284.4	.9501	.5659	1.956	.4392	.8648	151.3	.4271
Stddev	.0018	.1	.0060	.0048	.004	.0002	.0100	.4	.0023
%RSD	.4105	.0376	.6263	.8426	.2119	.0472	1.160	.2630	.5371
#1	.4326	284.4	.9459	.5692	1.959	.4394	.8719	151.5	.4287
#2	.4351	284.3	.9543	.5625	1.953	.4391	.8577	151.0	.4255

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4308	.4939	.9635	.9237	.6323	200.5	199.2	.9777	127.8
Stddev	.0034	.0033	.0021	.0026	.0012	.5	.4	.0246	.0
%RSD	.7781	.6617	.2203	.2822	.1917	.2556	.2109	2.515	.0041
#1	.4331	.4962	.9650	.9218	.6332	200.9	199.5	.9603	127.8
#2	.4284	.4916	.9620	.9255	.6315	200.2	198.9	.9951	127.8

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.127	90.25	7.723	.4503	86.79	.7408	30.87	.9588	5.416
Stddev	.001	.01	.016	.0045	.00	.0045	.22	.0054	.007
%RSD	.0569	.0145	.2098	.9895	.0043	.6139	.7122	.5674	.1235
#1	1.127	90.26	7.735	.4534	86.79	.7375	31.02	.9549	5.421
#2	1.128	90.24	7.712	.4471	86.80	.7440	30.71	.9626	5.412

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7450	.9441	.8654	20.19	43.21	.8893	.8252	6.573	1.684
Stddev	.0387	.0025	.0297	.06	.13	.0090	.0019	.017	.006
%RSD	5.197	.2597	3.430	.2913	.2913	1.015	.2258	.2567	.3607
#1	.7723	.9459	.8445	20.15	43.12	.8957	.8266	6.585	1.689
#2	.7176	.9424	.8864	20.23	43.30	.8830	.8239	6.561	1.680

Sample Name: L34674-04MS Acquired: 1/16/2017 16:09:53 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 102 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.8823	6.201	6.417
Stddev	.0031	.016	.004
%RSD	.3570	.2604	.0626
#1	.8846	6.213	6.414
#2	.8801	6.190	6.420

Int. Std.	Y_3710
Units	Cts/S
Avg	17550.
Stddev	16.
%RSD	.08928
#1	17539.
#2	17561.

Sample Name: L34674-04MSD Acquired: 1/16/2017 16:12:57 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 102 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4441	281.5	.9649	.5671	2.102	.4484	.9035	128.7	.4388
Stddev	.0056	.3	.0038	.0019	.002	.0004	.0158	.1	.0033
%RSD	1.257	.1070	.3918	.3289	.0949	.0900	1.749	.0531	.7480
#1	.4481	281.3	.9676	.5684	2.103	.4481	.9147	128.8	.4365
#2	.4402	281.7	.9623	.5658	2.100	.4487	.8923	128.7	.4411

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4399	.5180	.9698	.9276	.6428	203.3	202.2	.9595	128.0
Stddev	.0008	.0006	.0023	.0088	.0005	.1	.1	.0085	.2
%RSD	.1819	.1241	.2414	.9517	.0742	.0730	.0602	.8814	.1442
#1	.4405	.5184	.9682	.9338	.6431	203.4	202.3	.9655	128.1
#2	.4394	.5175	.9715	.9213	.6424	203.2	202.1	.9535	127.9

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.143	90.44	9.048	.4508	88.26	.7653	20.87	1.006	5.328
Stddev	.001	.03	.007	.0011	.04	.0002	.02	.028	.067
%RSD	.0609	.0344	.0797	.2404	.0455	.0248	.1020	2.780	1.261
#1	1.143	90.42	9.053	.4501	88.23	.7652	20.88	1.025	5.375
#2	1.142	90.46	9.043	.4516	88.29	.7655	20.85	.9858	5.280

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7325	.9591	.8920	20.49	43.84	.9088	.7642	6.504	1.749
Stddev	.0346	.0011	.0404	.01	.02	.0014	.0005	.000	.013
%RSD	4.727	.1193	4.531	.0513	.0513	.1558	.0613	.0046	.7282
#1	.7570	.9599	.8634	20.50	43.86	.9078	.7645	6.504	1.740
#2	.7080	.9583	.9206	20.48	43.83	.9098	.7639	6.504	1.758

Sample Name: L34674-04MSD Acquired: 1/16/2017 16:12:57 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: 102 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.8887	5.764	5.995
Stddev	.0004	.001	.006
%RSD	.0414	.0181	.0960
#1	.8885	5.765	5.991
#2	.8890	5.763	5.999

Int. Std.	Y_3710
Units	Cts/S
Avg	17174.
Stddev	17.
%RSD	.09898
#1	17186.
#2	17162.

Sample Name: L34674-05 Acquired: 1/16/2017 16:16:01 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 505 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055	34.85	.0223	.0180	.2368	-.0021	-.0338	116.7	.0156
Stddev	.0030	.15	.0099	.0011	.0006	.0000	.0182	.6	.0002
%RSD	53.40	.4291	44.46	6.011	.2440	2.208	53.89	.4925	1.069
#1	.0076	34.95	.0153	.0172	.2372	-.0021	-.0209	117.1	.0155
#2	.0035	34.74	.0294	.0187	.2364	-.0020	-.0467	116.3	.0157

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0150	.0148	.4984	.4870	.1175	48.02	47.69	.0247	6.447
Stddev	.0002	.0004	.0017	.0007	.0005	.01	.17	.0406	.032
%RSD	1.106	2.742	.3452	.1336	.4025	.0155	.3531	164.2	.4900
#1	.0151	.0151	.4972	.4875	.1179	48.02	47.81	.0534	6.469
#2	.0148	.0145	.4997	.4866	.1172	48.03	47.57	-.0040	6.424

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0359	9.000	1.613	.0310	1.033	.4078	42.42	.0060	1.924
Stddev	.0005	.001	.005	.0024	.007	.0062	.15	.0055	.014
%RSD	1.325	.0127	.3120	7.744	.7170	1.510	.3580	91.71	.7115
#1	.0355	8.999	1.617	.0293	1.028	.4035	42.31	.0099	1.934
#2	.0362	9.000	1.610	.0327	1.038	.4122	42.53	.0021	1.915

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0156	.0088	.0129	4.449	9.520	-.0049	.4607	.6003	-.0365
Stddev	.0065	.0001	.0003	.008	.018	.0046	.0032	.0017	.0104
%RSD	41.32	1.518	2.698	.1877	.1877	93.00	.6848	.2901	28.50
#1	-.0111	.0087	.0132	4.443	9.507	-.0017	.4629	.6015	-.0439
#2	-.0202	.0089	.0127	4.455	9.533	-.0082	.4585	.5990	-.0292

Sample Name: L34674-05 Acquired: 1/16/2017 16:16:01 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 505 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2988	1.767	1.786
Stddev	.0039	.006	.006
%RSD	1.322	.3660	.3470
#1	.3016	1.762	1.782
#2	.2960	1.772	1.790

Int. Std.	Y_3710
Units	Cts/S
Avg	17016.
Stddev	147.
%RSD	.86589
#1	17120.
#2	16912.

Sample Name: L34674-06 Acquired: 1/16/2017 16:19:07 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 505 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0012	19.34	-.0125	.0296	.0929	-.0033	-.0241	78.22	.0003
Stddev	.0050	.07	.0090	.0038	.0001	.0001	.0134	.31	.0007
%RSD	408.8	.3601	72.55	12.84	.1352	2.188	55.56	.3901	212.5
#1	.0023	19.39	-.0061	.0269	.0930	-.0034	-.0336	78.44	.0008
#2	-.0048	19.29	-.0189	.0323	.0928	-.0033	-.0146	78.01	-.0002

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019	.0035	.2725	.2641	.0332	23.26	23.06	.0188	4.721
Stddev	.0003	.0021	.0008	.0031	.0047	.12	.10	.0127	.000
%RSD	15.40	58.08	.2880	1.169	14.13	.5150	.4382	67.53	.0086
#1	.0017	.0021	.2730	.2663	.0365	23.34	23.13	.0098	4.721
#2	.0021	.0050	.2719	.2619	.0299	23.17	22.98	.0278	4.720

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0145	3.032	.6779	.0047	.6408	.1459	34.60	-.0087	.7899
Stddev	.0004	.016	.0021	.0007	.0004	.0017	.00	.0145	.0117
%RSD	2.915	.5395	.3086	14.47	.0568	1.167	.0046	165.9	1.480
#1	.0148	3.043	.6794	.0051	.6411	.1471	34.60	-.0190	.7817
#2	.0142	3.020	.6764	.0042	.6405	.1447	34.60	.0015	.7982

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002	-.0007	-.0315	3.755	8.035	.0045	.2891	.2719	-.0104
Stddev	.0112	.0001	.0114	.019	.041	.0041	.0018	.0012	.0098
%RSD	5211.	8.553	36.08	.5130	.5130	92.26	.6305	.4500	93.48
#1	.0081	-.0007	-.0395	3.768	8.064	.0016	.2904	.2727	-.0035
#2	-.0077	-.0006	-.0235	3.741	8.006	.0074	.2878	.2710	-.0173

Sample Name: L34674-06 Acquired: 1/16/2017 16:19:07 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 505 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.1100	.6614	.6650
Stddev	.0001	.0010	.0024
%RSD	.0483	.1547	.3657
#1	.1100	.6622	.6667
#2	.1101	.6607	.6633

Int. Std.	Y_3710
Units	Cts/S
Avg	17182.
Stddev	80.
%RSD	.46778
#1	17239.
#2	17125.

Sample Name: L34674-09 Acquired: 1/16/2017 16:25:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 505 Custom ID3:
Comment: WG416261

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003	13.25	.0049	.0162	.0827	-.0036	-.0187	18.81	-.0052
Stddev	.0033	.08	.0081	.0028	.0003	.0000	.0058	.08	.0005
%RSD	1013.	.5974	163.4	17.26	.4184	.2523	31.14	.4070	9.219
#1	.0027	13.30	-.0008	.0182	.0830	-.0036	-.0228	18.86	-.0048
#2	-.0020	13.19	.0107	.0142	.0825	-.0036	-.0146	18.76	-.0055

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0043	.0093	.2231	.2142	.0724	37.28	37.09	.0208	3.799
Stddev	.0003	.0034	.0004	.0012	.0006	.21	.25	.0042	.059
%RSD	5.895	36.48	.1831	.5680	.7913	.5699	.6758	20.41	1.546
#1	-.0045	.0069	.2228	.2134	.0728	37.43	37.27	.0238	3.840
#2	-.0041	.0117	.2234	.2151	.0720	37.13	36.91	.0178	3.757

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0065	2.278	.4271	.0031	.3124	.2270	7.561	-.0120	.3217
Stddev	.0003	.024	.0015	.0042	.0028	.0053	.096	.0065	.0331
%RSD	4.045	1.037	.3438	135.7	.9061	2.315	1.263	54.43	10.29
#1	.0063	2.262	.4282	.0001	.3144	.2308	7.629	-.0166	.3451
#2	.0067	2.295	.4261	.0060	.3104	.2233	7.494	-.0074	.2983

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0199	.0014	-.0375	3.953	8.459	-.0072	.0826	.0922	-.0182
Stddev	.0033	.0000	.0004	.006	.012	.0053	.0004	.0005	.0077
%RSD	16.83	3.408	1.185	.1471	.1471	73.40	.5019	.5219	42.11
#1	-.0175	.0014	-.0378	3.957	8.468	-.0110	.0829	.0925	-.0128
#2	-.0222	.0013	-.0372	3.949	8.451	-.0035	.0823	.0918	-.0236

Sample Name: L34674-09 Acquired: 1/16/2017 16:25:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 505 Custom ID3:
Comment: WG416261

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0547	.7842	.7807
Stddev	.0023	.0049	.0031
%RSD	4.149	.6299	.4003
#1	.0563	.7877	.7829
#2	.0531	.7807	.7785

Int. Std.	Y_3710
Units	Cts/S
Avg	16755.
Stddev	72.
%RSD	.42987
#1	16806.
#2	16704.

Sample Name: CCV Acquired: 1/16/2017 16:28:33 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5082	1.018	1.988	1.018	.9867	1.009	.9784	49.64	.9938
Stddev	.0010	.004	.039	.013	.0045	.002	.0007	.10	.0062
%RSD	.1994	.4161	1.962	1.237	.4524	.2145	.0665	.1941	.6254
#1	.5089	1.015	1.960	1.010	.9898	1.010	.9789	49.70	.9894
#2	.5075	1.021	2.015	1.027	.9835	1.007	.9779	49.57	.9982
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9942	.9742	.9763	.9694	.9922	1.005	.9987	1.036	9.778
Stddev	.0032	.0078	.0093	.0032	.0079	.007	.0031	.015	.018
%RSD	.3211	.7987	.9504	.3320	.7987	.6582	.3063	1.397	.1881
#1	.9920	.9687	.9697	.9717	.9866	1.001	.9965	1.026	9.765
#2	.9965	.9797	.9828	.9671	.9978	1.010	1.001	1.046	9.791
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9938	48.89	.9913	1.020	48.73	1.003	2.628	1.942	25.05
Stddev	.0025	.13	.0044	.001	.13	.004	.034	.014	.04
%RSD	.2479	.2628	.4478	.1195	.2606	.4520	1.289	.7337	.1472
#1	.9955	48.99	.9945	1.019	48.82	.9994	2.651	1.932	25.08
#2	.9920	48.80	.9882	1.020	48.64	1.006	2.604	1.952	25.02
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/16/2017 16:28:33 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.072	.9963	1.924	9.805	F 20.98	1.028	.9889	1.011	1.974
Stddev	.009	.0055	.036	.009	.02	.029	.0037	.002	.014
%RSD	.4123	.5474	1.864	.0962	.0962	2.835	.3756	.2386	.7059
#1	2.066	1.000	1.898	9.798	20.97	1.008	.9915	1.013	1.965
#2	2.078	.9924	1.949	9.811	21.00	1.049	.9863	1.009	1.984
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.014	.9834	.9907
Stddev	.002	.0013	.0066
%RSD	.1499	.1357	.6710
#1	1.013	.9825	.9860
#2	1.015	.9844	.9954
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	15673.
Stddev	172.
%RSD	1.0953
#1	15795.
#2	15552.

Sample Name: CCB Acquired: 1/16/2017 16:31:41 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0010**	**-.0097**	**-.0232**	**-.0043**	**-.0033**	**-.0044**	**-.0045**	**-.0343**	**-.0069**
Stddev	.0011	.0070	.0097	.0039	.0000	.0001	.0051	.0003	.0003
%RSD	111.0	72.19	41.68	90.13	.0948	1.848	114.4	.8412	3.779
#1	-.0018	-.0047	-.0300	-.0071	-.0033	-.0045	-.0009	-.0341	-.0071
#2	-.0002	-.0146	-.0164	-.0016	-.0033	-.0044	-.0081	-.0345	-.0067
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0050**	**-.0038**	**-.0133**	**-.0152**	**-.0051**	**-.0092**	**-.0134**	**.0045**	**.1487**
Stddev	.0016	.0028	.0020	.0015	.0034	.0043	.0025	.0209	.0588
%RSD	32.75	74.00	14.73	10.18	67.71	47.24	18.36	470.2	39.52
#1	-.0061	-.0018	-.0146	-.0141	-.0075	-.0061	-.0117	-.0104	.1071
#2	-.0038	-.0057	-.0119	-.0163	-.0026	-.0122	-.0152	.0193	.1902
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0013**	**.1351**	**-.0071**	**-.0033**	**.0301**	**.0004**	**-.0201**	**-.0261**	**.0293**
Stddev	.0006	.0194	.0002	.0019	.0054	.0000	.0408	.0042	.0290
%RSD	45.42	14.38	2.484	57.65	17.87	3.356	203.0	16.22	99.09
#1	-.0017	.1488	-.0073	-.0020	.0263	.0004	-.0489	-.0231	.0498
#2	-.0009	.1214	-.0070	-.0047	.0339	.0004	.0087	-.0291	.0088
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/16/2017 16:31:41 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0034	-.0058	-.0555	-.0126	-.0269	-.0138	-.0045	-.0025	-.0190
Stddev	.0022	.0003	.0084	.0030	.0064	.0178	.0001	.0001	.0301
%RSD	66.19	5.222	15.22	23.87	23.87	128.8	2.635	2.425	158.6
#1	-.0049	-.0061	-.0495	-.0104	-.0223	-.0012	-.0046	-.0024	-.0403
#2	-.0018	-.0056	-.0615	-.0147	-.0314	-.0264	-.0044	-.0025	.0023
Check ?	Chk Pass	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	-.0023	-.0065	-.0043
Stddev	.0020	.0014	.0005
%RSD	88.50	21.05	12.19
#1	-.0008	-.0075	-.0040
#2	-.0037	-.0055	-.0047
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	15765.
Stddev	50.
%RSD	.31905
#1	15800.
#2	15729.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52458	PCN	Nitric acid:	52458	PCN
Hydrochloric acid:	52395	PCN	Hydrochloric acid:	52395	PCN

VERIFIED BY: AEB 1/16/17

CEC

QC List Type: QC-ICP-CEC
QCListMatClass: LIQUID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: MA-ICP-D-846
Group ID: MA-G-ICP_-CEC
Method Ref: M6010B
SOP Ref: SOPII012

WG416336

ACZ Laboratories, Inc

Instrument ID: ICP8
Analyst: AEB
ACZ Dept: 33
Create Date: 01/17/2017 11:37
Start Date/Time: 1/17/17
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	Dilution	Comments
1	WG416336ICV	II170112-1			1		1	
2	WG416336ICB	NONE			1		1	
3	WG416336PQV	II161228-3			1		1	
4	WG416336ICSAB	II161031-5			1		1 20X	
5	WG416214PBS	NONE			1		1 ~~5X~~ AEB 1/18/17	
6	L34445-01	TP-6_7_9 (2-5)			1		1	
7	L34445-01DUP	NONE			1		1	
8	L34445-02	TP-12 (2-4)			1		1	
9	L34445-03	TP-15_16 (2-13)			1		1	
10	L34445-04	TP-20 (1-4)			1		1	
11	L34674-01	SB-06GT (1.5-10)			1		1	AEB 1/17/17
12	L34674-01AS	~~II170109-2~~ II CECSPIKE			1		1	
13	WG416336CCV1	II161227-1			1		1	
14	WG416336CCB1	NONE			1		1 20X	
15	L34674-01ASD	~~II170109-2~~ II CECSPIKE			1		1 ~~5X~~ AEB 1/18/17	
16	L34674-02	SB-07GT (0-4)			1		1	
17	L34674-03	SB-09GT (8-12)			1		1	
18	L34674-04	SB-09GT (18-22)			1		1	
19	L34674-04SDL	NONE			1		1	
20	L34674-05	SB-12GT (0-27)			1		1	
21	L34674-06	SB-13AL (0-25)			1		1	
22	L34674-07	SB-14AL (0-15)			1		1	
23	L34674-08	SB-14AL (15-35)			1		1	
24	L34674-09	SB-15AL (0-25)			1		1	

Report Comments: ~~5X~~ 20X dilutions due to ~~P~~ Y AEB 1/17/17
AEB 1/18/17

Internal Comments put to WIP. Y out - rerun on dilution AEB 1/18/17
changed spike SCNs to reflect different
LWHS and reuploaded AEB 1/18/17

AREV: AEB 1/18/17
Initials, Date

SREV: 1-18-17
Initials, Date

CEC

QC List Type: QC-ICP-CEC
QCListMatClass: LIQUID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: MA-ICP-D-846
Group ID: MA-G-ICP_-CEC
Method Ref: M6010B
SOP Ref: SOPII012

WG416336

ACZ Laboratories, Inc

Instrument ID: ICP8
Analyst:
ACZ Dept: 33
Create Date: 01/17/2017 11:37
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	Dilution	Comments
25	WG416336CCV2	II161227-1			1		1	
26	WG416336CCB2	NONE			1		1	20 AEB 1/18/17
27	L34674-10	SB-15AL (25-50)			1		1 SX	AEB
28	L34674-14	SB-09GT (8-12-DUPLIC			1		1 1	1/17/17
29	WG416336CCV3	II161227-1						
30	WG416336CCB3	NONE						

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	UEB
Date:	1/18/17
Approved By:	[illegible]
Date:	1/18/17

Work Group:	WG416336
Sample Type:	CEC
Analysis Date:	1/18/17
Analyst:	UEB

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	✓		
2) Are all of the QC critera listed in LIMS within specified limits? **	✓		
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
5) Is a current standard/reagent form attached to the workgroup?	✓		
6) Have all dilutions performed at the bench been checked off on the benchsheet?	✓		
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			✓
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?	✓		
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			✓
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
	All Passing	

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416336

Date Reported: 18-Jan-17
Run ID: R1493733
Date Analyzed: 18-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416336ICV

Tag:

Measured: 1/18/2017 10:58:28 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	100.0	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	100	1		%	++	0.2	1			
SREV	SODIUM	RSD	0.316	1		mg/L	++	0.2	1			
SREV	YTTRIUM	REC	98.62	1		%	++	0.001	0.005			

WG416336ICB

Tag:

Measured: 1/18/2017 11:01:29 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	100.15	1		%	++	0.001	0.005			

WG416336PQV

Tag:

Measured: 1/18/2017 11:04:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	1.08	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	108	1		%	++	0.2	1			
SREV	YTTRIUM	REC	100.48	1		%	++	0.001	0.005			

WG416336ICSAB

Tag:

Measured: 1/18/2017 11:07:53 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	25.8	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	103	1		%	++	0.2	1			
SREV	YTTRIUM	REC	99.85	1		%	++	0.001	0.005			

WG416214PBS

Tag:

Measured: 1/18/2017 11:14:13 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND		20	U	meq/100g	++	0.435	2.18			
SREV	YTTRIUM	REC	265.325	20		meq/100g	++	0.0025	0.0125			

L34445-01

Tag:

Measured: 1/18/2017 11:17:25 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	18.6	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	273	20		meq/100g	++	0.0025	0.0125		TB	

L34445-01DUP

Tag:

Measured: 1/18/2017 11:20:37 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	20.1	20		meq/100g	++	0.435	2.18			
SREV	SODIUM	RPD	8	20		%	++	0.435	2.18			
SREV	YTTRIUM	REC	274.45	20		meq/100g	++	0.0025	0.0125			

L34445-02

Tag: Measured: 1/18/2017 11:23:49 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	21.9	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	280	20		meq/100g	++	0.0025	0.0125		TB	

L34445-03

Tag: Measured: 1/18/2017 11:27:01 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	15.3	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	281	20		meq/100g	++	0.0025	0.0125		TB	

L34445-04

Tag: Measured: 1/18/2017 11:30:13 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	17.4	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	275	20		meq/100g	++	0.0025	0.0125		TB	

L34674-01

Tag: Measured: 1/18/2017 11:33:26 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	20.1	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	273	20		meq/100g	++	0.0025	0.0125		TB	

L34674-01AS

Tag: Measured: 1/18/2017 11:36:38 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	232	20		meq/100g	++	0.435	2.18			
SREV	SODIUM	REC	97	20		%	++	0.435	2.18			
SREV	YTTRIUM	REC	267.2	20		meq/100g	ALRT	0.0025	0.0125			

L34674-01ASD

Tag: Measured: 1/18/2017 11:39:46 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	232	20		meq/100g	++	0.435	2.18			
SREV	SODIUM	REC	97	20		%	++	0.435	2.18			
SREV	SODIUM	RPD	0	20		%	++	0.435	2.18			
SREV	YTTRIUM	REC	269.35	20		meq/100g	ALRT	0.0025	0.0125			

L34674-02

Tag: Measured: 1/18/2017 11:42:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	22.5	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	284	20		meq/100g	++	0.0025	0.0125		TB	

WG416336CCV1

Tag: Measured: 1/18/2017 11:46:06 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	51.9	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	104	1		%	++	0.2	1			
SREV	YTTRIUM	REC	108.18	1		%	++	0.001	0.005			

WG416336CCB1

Tag: Measured: 1/18/2017 11:49:11 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	109.81	1		%	++	0.001	0.005			

L34674-03

Tag: Measured: 1/18/2017 11:52:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	14.6	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	282	20		meq/100g	++	0.0025	0.0125		TB	

L34674-04

Tag: Measured: 1/18/2017 11:55:37 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	17.1	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	294	20		meq/100g	++	0.0025	0.0125		TB	

L34674-04SDL

Tag: Measured: 1/18/2017 11:58:50 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	D	2.00	20		%	++	0.435	2.18			
SREV	SODIUM	FOUND	3.50	20		meq/100g	++	0.435	2.18			
SREV	SODIUM	REG	3.50	20		meq/100g	++	0.435	2.18			
SREV	YTTRIUM	REC	278.3	20		meq/100g	++	0.0025	0.0125			

L34674-05

Tag: Measured: 1/18/2017 12:02:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	18.0	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	280	20		meq/100g	++	0.0025	0.0125		TB	

L34674-06

Tag: Measured: 1/18/2017 12:05:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	9.58	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	283	20		meq/100g	++	0.0025	0.0125		TB	

L34674-07

Tag: Measured: 1/18/2017 12:08:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	19.5	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	283	20		meq/100g	++	0.0025	0.0125		TB	

L34674-08

Tag: Measured: 1/18/2017 12:11:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	17.8	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	283	20		meq/100g	++	0.0025	0.0125		TB	

L34674-09

Tag: Measured: 1/18/2017 12:14:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	10.3	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	284	20		meq/100g	++	0.0025	0.0125		TB	

L34674-10

Tag: Measured: 1/18/2017 12:18:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	5.77	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	283	20		meq/100g	++	0.0025	0.0125		TB	

L34674-14

Tag: Measured: 1/18/2017 12:21:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	CEC	13.4	20		meq/100g	NEED	0.435	2.18		TB	
NEED	YTTRIUM	REC	281	20		meq/100g	++	0.0025	0.0125		TB	

WG416336CCV2

Tag: Measured: 1/18/2017 12:24:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND	51.8	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	104	1		%	++	0.2	1			
SREV	YTTRIUM	REC	108.72	1		%	++	0.001	0.005			

WG416336CCB2

Tag: Measured: 1/18/2017 12:27:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	110.96	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/18/2017 10:46:00 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0001**	**-.0001**	**.0000**	**.0000**	**.0013**	**-.0042**	**.0001**	**-.0055**	**-.0001**
Stddev	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0000
%RSD	45.38	51.63	228.6	24.51	1.352	.9337	53.30	2.190	27.91
#1	-.0000	-.0001	.0000	.0000	.0013	-.0041	.0001	-.0054	-.0001
#2	-.0001	-.0001	-.0000	.0000	.0013	-.0042	.0000	-.0056	-.0002

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0000**	**-.0000**	**.0000**	**.0001**	**.0003**	**.0002**	**.0001**	**.0001**	**.0049**
Stddev	.0000	.0000	.0000	.0000	.0001	.0000	.0000	.0000	.0005
%RSD	338.9	33.50	531.2	34.52	22.79	24.92	16.99	8.335	9.802
#1	-.0000	-.0000	-.0000	.0001	.0004	.0002	.0001	.0001	.0052
#2	.0000	-.0000	.0000	.0001	.0003	.0001	.0001	.0001	.0045

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0018**	**-.0001**	**.0001**	**.0001**	**.0067**	**.0000**	**.0000**	**.0001**	**.0001**
Stddev	.0001	.0001	.0000	.0000	.0002	.0000	.0001	.0000	.0000
%RSD	7.544	54.07	15.40	39.35	2.690	75.39	212.5	15.16	27.19
#1	-.0017	-.0002	.0002	.0000	.0068	.0000	-.0000	.0001	.0001
#2	-.0019	-.0001	.0001	.0001	.0066	.0000	.0001	.0001	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0002**	**.0000**	**.0005**	**.0005**	**.0000**	**.0002**	**.0001**	**-.0000**
Stddev	.0000	.0000	.0000	.0001	.0001	.0000	.0002	.0002	.0000
%RSD	30.01	9.323	97.98	20.51	20.51	143.3	85.08	202.4	4.046
#1	.0001	.0002	.0000	.0005	.0005	.0000	.0001	.0002	-.0000
#2	.0000	.0002	.0000	.0004	.0004	-.0000	.0004	-.0000	-.0001

Sample Name: Blank Acquired: 1/18/2017 10:46:00 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**-.0003**	**-.0000**	**.0001**
Stddev	.0001	.0000	.0000
%RSD	32.76	174.2	39.55
#1	-.0003	.0000	.0001
#2	-.0002	-.0000	.0001

Int. Std.	Y_3710
Units	Cts/S
Avg	**16437.**
Stddev	187.
%RSD	1.1372
#1	16569.
#2	16305.

Sample Name: CalStd-1 Acquired: 1/18/2017 10:49:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0201**	**.1132**	**.0037**	**.0247**	**2.956**	**1.381**	**.0051**	**.0358**	**.0503**
Stddev	.0000	.0012	.0000	.0004	.031	.015	.0001	.0002	.0008
%RSD	.2202	1.097	1.314	1.490	1.052	1.110	2.059	.4955	1.613
#1	.0201	.1123	.0036	.0244	2.934	1.370	.0051	.0356	.0497
#2	.0200	.1141	.0037	.0249	2.978	1.391	.0052	.0359	.0508

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0443**	**.0154**	**.0538**	**.0716**	**.0425**	**.0345**	**.0894**	**.0031**	**.1131**
Stddev	.0009	.0002	.0009	.0010	.0010	.0001	.0008	.0002	.0010
%RSD	2.001	1.591	1.749	1.337	2.305	.2579	.9280	4.950	.9120
#1	.0437	.0152	.0531	.0709	.0418	.0344	.0888	.0030	.1124
#2	.0449	.0156	.0545	.0723	.0432	.0346	.0900	.0032	.1139

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.6520**	**.0178**	**.2152**	**.0117**	**.1017**	**.0031**	**.0076**	**.0031**	**.0021**
Stddev	.0071	.0002	.0019	.0002	.0014	.0000	.0001	.0001	.0000
%RSD	1.085	1.019	.8716	1.361	1.357	1.579	1.104	1.666	2.116
#1	.6470	.0177	.2139	.0116	.1007	.0031	.0076	.0031	.0021
#2	.6570	.0179	.2165	.0118	.1027	.0031	.0077	.0031	.0021

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.6808**	**.0036**	**.0319**	**.0319**	**.0059**	**2.095**	**.0753**	**.0082**	**.0173**
Stddev	.0068	.0001	.0004	.0004	.0001	.023	.0008	.0002	.0002
%RSD	.9942	1.781	1.139	1.139	1.453	1.095	1.112	2.412	.8755
#1	.6760	.0035	.0316	.0316	.0059	2.079	.0747	.0081	.0172
#2	.6856	.0036	.0321	.0321	.0060	2.111	.0759	.0084	.0174

Sample Name: CalStd-1 Acquired: 1/18/2017 10:49:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0177	.0268
Stddev	.0002	.0004
%RSD	1.193	1.425
#1	.0175	.0265
#2	.0178	.0270

Int. Std.	Y_3710
Units	Cts/S
Avg	16459.
Stddev	293.
%RSD	1.7772
#1	16666.
#2	16253.

Sample Name: L34674-14 Acquired: 1/18/2017 12:21:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0024**	**.0261**	**-.0139**	**-.0038**	**.0262**	**.0043**	**.0129**	**.5889**	**-.0013**
Stddev	.0038	.0002	.0079	.0007	.0000	.0000	.0128	.0069	.0001
%RSD	159.6	.8929	56.67	17.21	.0374	.6064	99.13	1.171	7.081
#1	-.0051	.0263	-.0194	-.0034	.0262	.0042	.0220	.5938	-.0014
#2	.0003	.0259	-.0083	-.0043	.0262	.0043	.0039	.5840	-.0012

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**.0020**	**-.0032**	**.0031**	**-.0007**	**.0115**	**.0123**	**-.0001**	**.1418**
Stddev	.0009	.0033	.0018	.0003	.0019	.0009	.0002	.0330	.0351
%RSD	227.0	168.3	57.17	8.854	268.4	7.522	1.658	24900.	24.78
#1	.0002	.0043	-.0019	.0033	.0006	.0109	.0124	.0232	.1666
#2	-.0010	-.0004	-.0044	.0029	-.0020	.0121	.0121	-.0234	.1169

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0330**	**.0677**	**-.0015**	**6.179**	**.0014**	**.0172**	**-.0058**	**.0656**
Stddev	.0003	.0002	.0008	.0028	.023	.0014	.0096	.0025	.0039
%RSD	44.13	.6842	1.152	188.7	.3749	99.96	55.45	43.36	5.996
#1	-.0005	.0329	.0683	.0005	6.196	.0004	.0240	-.0076	.0684
#2	-.0010	.0332	.0672	-.0034	6.163	.0023	.0105	-.0040	.0628

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0105**	**.0005**	**.0009**	**.1292**	**.2764**	**.0007**	**.0047**	**.0017**	**-.0030**
Stddev	.0248	.0000	.0021	.0115	.0245	.0063	.0000	.0001	.0054
%RSD	237.0	5.134	248.5	8.876	8.876	940.6	.0578	8.260	176.8
#1	.0071	.0005	-.0006	.1373	.2937	.0052	.0047	.0018	-.0068
#2	-.0280	.0005	.0024	.1211	.2590	-.0038	.0047	.0016	.0008

Sample Name: L34674-14 Acquired: 1/18/2017 12:21:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0003	.7578	.7643
Stddev	.0025	.0142	.0086
%RSD	980.9	1.875	1.122
#1	-.0015	.7678	.7704
#2	.0020	.7477	.7583

Int. Std.	Y_3710
Units	Cts/S
Avg	18507.
Stddev	27.
%RSD	.14595
#1	18488.
#2	18526.

Sample Name: CalStd-2 Acquired: 1/18/2017 10:52:16 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0400**	**.2274**	**.0073**	**.0490**	**5.931**	**2.801**	**.0102**	**.0775**	**.0999**
Stddev	.0003	.0008	.0001	.0002	.001	.001	.0001	.0003	.0006
%RSD	.7291	.3671	.8838	.4048	.0157	.0391	1.246	.3542	.5793
#1	.0402	.2280	.0072	.0488	5.932	2.802	.0101	.0777	.0995
#2	.0398	.2268	.0073	.0491	5.931	2.801	.0102	.0773	.1003

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0880**	**.0307**	**.1072**	**.1434**	**.0846**	**.0691**	**.1790**	**.0060**	**.2185**
Stddev	.0008	.0002	.0009	.0003	.0000	.0002	.0006	.0002	.0011
%RSD	.9139	.5546	.8049	.2324	.0191	.3279	.3431	3.302	.5212
#1	.0874	.0306	.1066	.1436	.0846	.0693	.1794	.0062	.2193
#2	.0886	.0309	.1078	.1431	.0847	.0690	.1785	.0059	.2177

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.300**	**.0353**	**.4275**	**.0233**	**.1966**	**.0062**	**.0152**	**.0061**	**.0042**
Stddev	.003	.0002	.0010	.0000	.0004	.0001	.0001	.0000	.0001
%RSD	.2290	.6743	.2279	.1962	.1895	1.441	.7876	.2084	1.255
#1	1.302	.0354	.4282	.0233	.1969	.0062	.0151	.0060	.0042
#2	1.298	.0351	.4268	.0233	.1963	.0063	.0153	.0061	.0043

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.364**	**.0072**	**.0633**	**.0633**	**.0118**	**4.215**	**.1512**	**.0163**	**.0349**
Stddev	.002	.0001	.0003	.0003	.0001	.001	.0002	.0000	.0002
%RSD	.1213	1.136	.5380	.5380	1.041	.0292	.1197	.1884	.6902
#1	1.365	.0071	.0635	.0635	.0117	4.214	.1514	.0163	.0351
#2	1.363	.0072	.0630	.0630	.0119	4.216	.1511	.0164	.0347

Sample Name: CalStd-2 Acquired: 1/18/2017 10:52:16 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0351	.0532
Stddev	.0003	.0004
%RSD	.8821	.8151
#1	.0349	.0529
#2	.0353	.0535

Int. Std.	Y_3710
Units	Cts/S
Avg	16649.
Stddev	120.
%RSD	.72042
#1	16734.
#2	16564.

Sample Name: CalStd-3 Acquired: 1/18/2017 10:55:18 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.607	2.139	.3526	9.583	.0212	.0607
Stddev	.001	.003	.0001	.010	.0001	.0005
%RSD	.0900	.1168	.0338	.1012	.5013	.8382
#1	1.606	2.137	.3527	9.576	.0211	.0604
#2	1.608	2.141	.3525	9.590	.0213	.0611

Int. Std.	Y_3710
Units	Cts/S
Avg	16337.
Stddev	175.
%RSD	1.0705
#1	16461.
#2	16213.

Sample Name: ICV Acquired: 1/18/2017 10:58:28 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9658	2.009	3.868	1.970	1.934	1.976	1.936	99.17	1.915
Stddev	.0043	.004	.058	.019	.011	.007	.013	.12	.016
%RSD	.4423	.1785	1.508	.9848	.5452	.3565	.6536	.1175	.8152
#1	.9627	2.006	3.826	1.956	1.927	1.971	1.945	99.08	1.904
#2	.9688	2.011	3.909	1.984	1.941	1.981	1.927	99.25	1.926
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.925	F 1.868	1.918	1.936	1.959	1.932	1.945	1.922	19.78
Stddev	.019	.016	.029	.002	.004	.007	.005	.012	.11
%RSD	1.010	.8577	1.525	.0849	.2115	.3624	.2481	.5973	.5541
#1	1.911	1.857	1.897	1.937	1.961	1.927	1.948	1.930	19.70
#2	1.939	1.879	1.939	1.935	1.956	1.937	1.941	1.914	19.86
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value		2.000							
Range		-5.550%							

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.950	99.77	1.918	1.990	100.0	1.988	5.152	F 3.777	49.65
Stddev	.009	.35	.003	.010	.3	.012	.042	.053	.22
%RSD	.4593	.3515	.1399	.5194	.3162	.5787	.8190	1.403	.4380
#1	1.944	99.52	1.916	1.982	99.82	1.980	5.122	3.740	49.50
#2	1.956	100.0	1.920	1.997	100.3	1.996	5.182	3.815	49.80
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
Value								4.000	
Range								-5.550%	

Sample Name: ICV Acquired: 1/18/2017 10:58:28 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.027**	**1.944**	**3.901**	F **18.78**	F **40.19**	**1.969**	**1.944**	**1.927**	**3.817**
Stddev	.011	.007	.020	.06	.12	.015	.009	.008	.077
%RSD	.2604	.3588	.5130	.3072	.3072	.7563	.4463	.4183	2.013
#1	4.019	1.939	3.887	18.74	40.10	1.959	1.938	1.921	3.763
#2	4.034	1.949	3.915	18.82	40.27	1.980	1.950	1.932	3.872
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				20.00	20.00				
Range				-5.550%	5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**1.978**	**1.892**	**1.949**
Stddev	.006	.011	.016
%RSD	.3101	.6010	.8422
#1	1.974	1.884	1.938
#2	1.982	1.900	1.961
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**16210.**
Stddev	236.
%RSD	1.4583
#1	16378.
#2	16043.

Sample Name: ICB Acquired: 1/18/2017 11:01:29 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0023**	**.0030**	**-.0095**	**-.0006**	**.0031**	**.0060**	**.0230**	**.0278**	**-.0004**
Stddev	.0002	.0041	.0083	.0024	.0004	.0002	.0018	.0204	.0001
%RSD	10.97	134.2	87.03	440.0	12.10	3.153	7.906	73.12	33.70
#1	-.0021	.0059	-.0037	-.0023	.0033	.0062	.0218	.0422	-.0003
#2	-.0024	.0002	-.0154	.0012	.0028	.0059	.0243	.0134	-.0005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0006**	**.0022**	**-.0044**	**.0046**	**.0045**	**.0005**	**.0039**	**.0241**	**-.0045**
Stddev	.0005	.0019	.0001	.0026	.0002	.0034	.0013	.0043	.0128
%RSD	88.25	86.05	1.183	55.50	4.908	669.1	34.25	17.85	282.0
#1	.0002	.0009	-.0044	.0064	.0047	.0029	.0030	.0210	-.0135
#2	.0009	.0035	-.0043	.0028	.0044	-.0019	.0049	.0271	.0045
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0003**	**.1065**	**-.0006**	**.0007**	**.0923**	**.0048**	**-.0247**	**-.0090**	**.1149**
Stddev	.0002	.0269	.0001	.0003	.0097	.0022	.0195	.0054	.0042
%RSD	54.65	25.24	23.29	47.42	10.56	44.57	78.95	60.63	3.688
#1	-.0004	.1255	-.0007	.0009	.0992	.0064	-.0109	-.0128	.1179
#2	-.0002	.0875	-.0005	.0005	.0854	.0033	-.0384	-.0051	.1119
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/18/2017 11:01:29 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0081**	**.0025**	**.0189**	**.0157**	**.0337**	**-.0051**	**.0037**	**.0032**	**-.0126**
Stddev	.0023	.0002	.0099	.0061	.0130	.0023	.0002	.0004	.0146
%RSD	29.08	9.971	52.63	38.51	38.51	45.27	6.092	11.26	115.4
#1	.0097	.0027	.0259	.0200	.0429	-.0035	.0039	.0034	-.0229
#2	.0064	.0023	.0119	.0115	.0245	-.0068	.0036	.0029	-.0023
Check ?	Chk Pass	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	**-.0003**	**.0007**	**-.0002**
Stddev	.0007	.0007	.0007
%RSD	235.9	106.0	307.6
#1	-.0008	.0012	.0003
#2	.0002	.0002	-.0007
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**16462.**
Stddev	264.
%RSD	1.6049
#1	16649.
#2	16275.

Sample Name: PQV Acquired: 1/18/2017 11:04:42 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0235	.1635	.1995	.0526	.0171	.0559	.2189	.5292	.0133
Stddev	.0004	.0065	.0083	.0005	.0000	.0004	.0073	.0060	.0008
%RSD	1.871	3.970	4.140	1.025	.2199	.6761	3.312	1.137	6.314
#1	.0232	.1681	.2053	.0522	.0171	.0562	.2241	.5335	.0128
#2	.0239	.1590	.1936	.0530	.0171	.0556	.2138	.5250	.0139
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0141	.0510	.0503	.0557	.0534	.0502	.0533	.5539	1.017
Stddev	.0000	.0005	.0023	.0008	.0000	.0037	.0003	.0087	.012
%RSD	.1763	.9421	4.600	1.409	.0386	7.399	.6276	1.565	1.185
#1	.0141	.0506	.0519	.0562	.0533	.0528	.0536	.5600	1.025
#2	.0141	.0513	.0487	.0551	.0534	.0476	.0531	.5478	1.008
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0413	1.041	.0244	.1037	1.076	.0455	.5316	.1549	1.349
Stddev	.0011	.004	.0001	.0037	.009	.0017	.0049	.0042	.014
%RSD	2.662	.4220	.4003	3.606	.8236	3.769	.9267	2.692	1.063
#1	.0405	1.044	.0245	.1011	1.082	.0467	.5281	.1519	1.338
#2	.0420	1.038	.0244	.1064	1.070	.0442	.5350	.1578	1.359
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: PQV Acquired: 1/18/2017 11:04:42 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1641	.5145	.2631	.5353	F 1.146	.2127	.0282	.0270	.5268
Stddev	.0184	.0006	.0112	.0009	.002	.0102	.0002	.0005	.0075
%RSD	11.19	.1129	4.256	.1701	.1701	4.801	.6432	1.768	1.428
#1	.1511	.5141	.2551	.5347	1.144	.2055	.0283	.0266	.5321
#2	.1771	.5150	.2710	.5360	1.147	.2199	.0281	.0273	.5215
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0236	.0568	.0538
Stddev	.0007	.0012	.0007
%RSD	2.990	2.086	1.368
#1	.0231	.0576	.0543
#2	.0241	.0559	.0533
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	16516.
Stddev	112.
%RSD	.67643
#1	16595.
#2	16437.

Sample Name: ICSAB Acquired: 1/18/2017 11:07:53 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4844	250.4	5.003	.4864	.2449	.2432	.5263	241.3	.4632
Stddev	.0016	.7	.033	.0002	.0001	.0003	.0163	.6	.0000
%RSD	.3391	.2682	.6558	.0491	.0255	.1104	3.090	.2645	.0082
#1	.4832	250.9	5.026	.4866	.2448	.2434	.5148	241.7	.4632
#2	.4855	250.0	4.980	.4862	.2449	.2430	.5378	240.8	.4632
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4661	.2339	.2411	.2386	.2396	95.18	95.16	.4695	25.34
Stddev	.0007	.0000	.0017	.0012	.0061	.14	.11	.0001	.02
%RSD	.1446	.0151	.7179	.5009	2.557	.1473	.1169	.0225	.0918
#1	.4656	.2338	.2423	.2395	.2353	95.28	95.24	.4694	25.36
#2	.4665	.2339	.2399	.2378	.2439	95.08	95.08	.4695	25.32
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5116	251.4	.2367	.4800	25.80	.4743	4.987	.4359	2.567
Stddev	.0023	1.5	.0001	.0032	.02	.0017	.018	.0120	.040
%RSD	.4453	.5869	.0220	.6602	.0945	.3527	.3688	2.759	1.544
#1	.5132	252.5	.2367	.4778	25.81	.4731	4.974	.4444	2.595
#2	.5100	250.4	.2366	.4823	25.78	.4755	5.000	.4274	2.539
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/18/2017 11:07:53 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5065	.4987	4.947	2.478	F 5.303	2.393	.4919	.4904	2.335
Stddev	.0392	.0004	.004	.004	.009	.002	.0005	.0015	.006
%RSD	7.747	.0827	.0715	.1761	.1761	.0669	.1102	.3002	.2545
#1	.4787	.4984	4.945	2.475	5.297	2.395	.4916	.4894	2.339
#2	.5342	.4990	4.950	2.481	5.310	2.392	.4923	.4915	2.330
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2340	.4661	.4894
Stddev	.0034	.0029	.0008
%RSD	1.472	.6301	.1619
#1	.2364	.4640	.4899
#2	.2315	.4682	.4888
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	16413.
Stddev	72.
%RSD	.44079
#1	16464.
#2	16362.

Sample Name: WASH Acquired: 1/18/2017 11:11:01 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0045**	**.0810**	**-.0239**	**-.0037**	**.0013**	**.0042**	**.0100**	**.0042**	**-.0018**
Stddev	.0030	.0074	.0150	.0030	.0001	.0001	.0008	.0156	.0002
%RSD	66.20	9.113	62.71	81.85	8.795	3.397	8.109	368.8	9.788
#1	-.0024	.0862	-.0133	-.0015	.0014	.0043	.0105	.0152	-.0017
#2	-.0066	.0757	-.0344	-.0058	.0013	.0041	.0094	-.0068	-.0020
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**-.0011**	**-.0042**	**.0062**	**-.0006**	**.0438**	**.0515**	**.0038**	**-.0410**
Stddev	.0006	.0018	.0002	.0006	.0021	.0007	.0042	.0160	.0273
%RSD	115.7	163.6	5.441	9.973	348.7	1.672	8.090	418.8	66.58
#1	-.0009	-.0024	-.0040	.0058	-.0021	.0443	.0545	.0151	-.0603
#2	-.0001	.0002	-.0044	.0066	.0009	.0433	.0486	-.0075	-.0217
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0018**	**.0794**	**.0044**	**-.0028**	**-.0027**	**.0022**	**-.0138**	**-.0083**	**.0213**
Stddev	.0001	.0037	.0002	.0007	.0062	.0024	.0143	.0050	.0213
%RSD	5.768	4.626	4.645	26.30	226.9	106.7	103.8	60.53	100.3
#1	-.0019	.0768	.0045	-.0023	.0016	.0005	-.0239	-.0119	.0062
#2	-.0017	.0819	.0042	-.0034	-.0071	.0039	-.0037	-.0048	.0364
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/18/2017 11:11:01 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017	.0007	.0099	.0021	.0045	-.0006	.0021	.0010	-.0225
Stddev	.0053	.0002	.0208	.0010	.0021	.0085	.0001	.0014	.0181
%RSD	322.0	25.37	208.9	45.42	45.42	1483.	5.863	137.0	80.12
#1	.0054	.0006	-.0047	.0028	.0060	.0055	.0021	.0020	-.0098
#2	-.0021	.0008	.0246	.0014	.0031	-.0066	.0020	.0000	-.0353
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0027	-.0035	-.0016
Stddev	.0017	.0000	.0006
%RSD	63.07	.4887	37.48
#1	-.0015	-.0035	-.0012
#2	-.0039	-.0035	-.0021
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	16567.
Stddev	63.
%RSD	.38223
#1	16612.
#2	16522.

Sample Name: WG416214PBS Acquired: 1/18/2017 11:14:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0040**	**.0171**	**-.0100**	**-.0021**	**.0011**	**.0045**	**-.0009**	**.3063**	**-.0023**
Stddev	.0039	.0046	.0204	.0033	.0001	.0001	.0146	.0147	.0001
%RSD	98.03	26.84	205.5	157.4	6.511	1.162	1561.	4.799	5.247
#1	.0067	.0204	.0045	-.0045	.0011	.0045	-.0113	.3167	-.0022
#2	.0012	.0139	-.0244	.0002	.0012	.0044	.0094	.2959	-.0024

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0012**	**-.0010**	**-.0040**	**.0050**	**.0012**	**.0024**	**.0088**	**.0047**	**-.0482**
Stddev	.0008	.0001	.0022	.0001	.0018	.0166	.0025	.0224	.0138
%RSD	65.63	7.840	54.72	1.281	149.0	682.6	28.03	479.2	28.64
#1	-.0007	-.0010	-.0024	.0051	-.0001	.0142	.0106	.0205	-.0580
#2	-.0018	-.0011	-.0055	.0050	.0025	-.0093	.0071	-.0112	-.0385

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0014**	**-.0105**	**-.0026**	**-.0013**	**.0451**	**.0007**	**-.0215**	**-.0079**	**.0630**
Stddev	.0001	.0145	.0002	.0006	.0026	.0001	.0177	.0016	.0038
%RSD	5.293	138.3	6.742	44.67	5.855	17.67	82.46	20.42	6.021
#1	-.0015	-.0002	-.0024	-.0009	.0470	.0008	-.0090	-.0090	.0657
#2	-.0014	-.0207	-.0027	-.0018	.0433	.0006	-.0340	-.0067	.0603

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0174**	**.0008**	**.0085**	**.0065**	**.0139**	**.0006**	**.0022**	**.0010**	**.0036**
Stddev	.0150	.0000	.0052	.0091	.0195	.0053	.0001	.0007	.0006
%RSD	86.32	4.882	61.03	140.1	140.1	861.6	5.007	69.87	15.38
#1	-.0281	.0008	.0122	.0001	.0001	-.0032	.0023	.0015	.0032
#2	-.0068	.0008	.0048	.0130	.0278	.0044	.0021	.0005	.0040

Sample Name: WG416214PBS Acquired: 1/18/2017 11:14:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0029	.0210	.0229
Stddev	.0000	.0019	.0021
%RSD	1.097	8.884	9.095
#1	-.0029	.0197	.0214
#2	-.0029	.0223	.0244

Int. Std.	Y_3710
Units	Cts/S
Avg	17445.
Stddev	150.
%RSD	.85708
#1	17551.
#2	17340.

Sample Name: L34445-01 Acquired: 1/18/2017 11:17:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0105	.0198	-.0081	-.0025	.0264	.0044	.0028	.4253	-.0012
Stddev	.0019	.0081	.0050	.0040	.0001	.0000	.0243	.0096	.0002
%RSD	18.41	40.83	61.36	160.2	.5494	.2343	857.8	2.256	15.66
#1	.0118	.0255	-.0046	-.0053	.0265	.0044	.0200	.4185	-.0014
#2	.0091	.0141	-.0116	.0003	.0263	.0044	-.0144	.4320	-.0011

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0003	-.0015	-.0047	.0016	-.0007	.0065	.0075	-.0266	.1087
Stddev	.0017	.0006	.0005	.0002	.0036	.0021	.0011	.0010	.0013
%RSD	491.0	36.19	11.35	11.74	494.0	32.02	14.58	3.679	1.186
#1	-.0015	-.0019	-.0051	.0014	-.0033	.0079	.0083	-.0259	.1096
#2	.0008	-.0011	-.0043	.0017	.0018	.0050	.0067	-.0273	.1078

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0011	.0618	-.0013	-.0023	8.534	.0029	.0161	-.0038	.0651
Stddev	.0002	.0096	.0000	.0006	.056	.0001	.0174	.0107	.0016
%RSD	15.04	15.51	.3767	25.73	.6561	3.744	108.0	277.8	2.434
#1	-.0012	.0550	-.0013	-.0019	8.573	.0029	.0284	.0037	.0640
#2	-.0010	.0686	-.0013	-.0028	8.494	.0028	.0038	-.0114	.0663

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000	.0005	.0025	.0652	.1394	-.0016	.0044	.0015	.0066
Stddev	.0044	.0001	.0070	.0111	.0238	.0064	.0001	.0006	.0049
%RSD	33510.	21.27	283.8	17.09	17.09	395.3	1.659	42.22	74.97
#1	.0031	.0004	.0075	.0730	.1563	-.0062	.0045	.0010	.0100
#2	-.0031	.0006	-.0025	.0573	.1226	.0029	.0044	.0019	.0031

Sample Name: L34445-01 Acquired: 1/18/2017 11:17:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0007	.0101	.0082
Stddev	.0006	.0015	.0012
%RSD	82.55	14.30	14.79
#1	-.0003	.0091	.0074
#2	-.0011	.0112	.0091

Int. Std.	Y_3710
Units	Cts/S
Avg	17917.
Stddev	118.
%RSD	.65736
#1	17834.
#2	18001.

Sample Name: L34445-01DUP Acquired: 1/18/2017 11:20:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0062**	**.0100**	**-.0085**	**-.0034**	**.0277**	**.0043**	**-.0015**	**.3682**	**-.0011**
Stddev	.0020	.0009	.0004	.0009	.0001	.0001	.0045	.0104	.0004
%RSD	32.42	9.137	4.541	27.98	.3468	2.727	295.2	2.836	36.83
#1	-.0048	.0107	-.0087	-.0040	.0277	.0043	-.0047	.3608	-.0014
#2	-.0077	.0094	-.0082	-.0027	.0278	.0044	.0017	.3755	-.0008

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000**	**.0004**	**-.0025**	**.0030**	**.0003**	**.0036**	**.0055**	**-.0245**	**.1187**
Stddev	.0007	.0024	.0000	.0005	.0022	.0050	.0019	.0232	.0066
%RSD	1635.	661.0	1.664	16.24	784.2	139.5	35.27	94.53	5.549
#1	.0005	-.0014	-.0025	.0027	.0018	.0071	.0069	-.0081	.1140
#2	-.0004	.0021	-.0025	.0034	-.0013	.0000	.0041	-.0409	.1233

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.0702**	**-.0009**	**-.0024**	**9.225**	**.0019**	**-.0027**	**-.0149**	**.0657**
Stddev	.0003	.0030	.0002	.0001	.009	.0001	.0082	.0037	.0150
%RSD	37.36	4.224	24.64	2.954	.0992	3.681	299.5	24.94	22.77
#1	-.0007	.0681	-.0007	-.0023	9.218	.0018	.0031	-.0123	.0763
#2	-.0012	.0723	-.0010	-.0024	9.231	.0019	-.0086	-.0175	.0551

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0015**	**.0002**	**.0184**	**.0633**	**.1355**	**-.0030**	**.0046**	**.0011**	**-.0044**
Stddev	.0007	.0004	.0011	.0027	.0057	.0056	.0000	.0003	.0016
%RSD	46.57	152.0	5.944	4.237	4.237	188.5	.4085	23.00	35.23
#1	.0010	.0005	.0192	.0614	.1314	-.0069	.0046	.0010	-.0055
#2	.0020	-.0000	.0177	.0652	.1395	.0010	.0046	.0013	-.0033

Sample Name: L34445-01DUP Acquired: 1/18/2017 11:20:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0011	.0035	.0041
Stddev	.0011	.0015	.0018
%RSD	100.8	41.63	43.42
#1	-.0003	.0025	.0029
#2	-.0018	.0046	.0054

Int. Std.	Y_3710
Units	Cts/S
Avg	18045.
Stddev	147.
%RSD	.81327
#1	18149.
#2	17941.

Sample Name: L34445-02 Acquired: 1/18/2017 11:23:49 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0020**	**.0188**	**-.0070**	**-.0042**	**.0330**	**.0045**	**.0218**	**14.75**	**-.0011**
Stddev	.0016	.0077	.0124	.0003	.0001	.0000	.0051	.12	.0000
%RSD	79.57	40.81	176.7	6.072	.2295	.0807	23.43	.8096	2.888
#1	-.0031	.0242	.0018	-.0044	.0331	.0045	.0254	14.83	-.0011
#2	-.0009	.0134	-.0158	-.0040	.0330	.0045	.0182	14.66	-.0011

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0006**	**-.0018**	**-.0033**	**.0004**	**.0031**	**.0012**	**.0052**	**-.0059**	**.1229**
Stddev	.0003	.0007	.0007	.0007	.0020	.0013	.0029	.0032	.0087
%RSD	59.50	38.34	20.14	185.7	64.32	105.4	56.00	54.07	7.091
#1	-.0008	-.0013	-.0037	-.0001	.0017	.0003	.0073	-.0036	.1168
#2	-.0003	-.0023	-.0028	.0008	.0046	.0021	.0031	-.0082	.1291

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0838**	**.0030**	**-.0040**	**10.08**	**.0045**	**-.0105**	**-.0107**	**.1025**
Stddev	.0005	.0112	.0002	.0003	.01	.0020	.0025	.0061	.0186
%RSD	69.76	13.33	6.852	7.846	.0907	43.68	23.64	57.10	18.12
#1	-.0010	.0917	.0029	-.0042	10.07	.0031	-.0123	-.0150	.1156
#2	-.0003	.0759	.0032	-.0038	10.09	.0060	-.0088	-.0063	.0893

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0159**	**.0005**	**.0052**	**.0597**	**.1277**	**-.0056**	**.0101**	**.0006**	**-.0132**
Stddev	.0025	.0003	.0044	.0006	.0013	.0052	.0001	.0001	.0070
%RSD	15.38	58.78	84.38	.9843	.9843	92.84	.6596	17.10	53.22
#1	-.0142	.0008	.0021	.0592	.1268	-.0093	.0102	.0007	-.0182
#2	-.0177	.0003	.0083	.0601	.1286	-.0019	.0101	.0005	-.0082

Sample Name: L34445-02 Acquired: 1/18/2017 11:23:49 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0008	.0251	.0243
Stddev	.0013	.0010	.0009
%RSD	161.2	4.130	3.593
#1	.0001	.0258	.0237
#2	-.0018	.0244	.0249

Int. Std.	Y_3710
Units	Cts/S
Avg	18379.
Stddev	305.
%RSD	1.6575
#1	18594.
#2	18163.

Sample Name: L34445-03 Acquired: 1/18/2017 11:27:01 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0100	.0096	-.0135	-.0036	.0273	.0044	.0175	.4068	-.0016
Stddev	.0019	.0039	.0035	.0026	.0001	.0000	.0091	.0033	.0001
%RSD	18.98	40.52	25.96	72.41	.5187	.4719	51.80	.8189	7.165
#1	.0086	.0123	-.0110	-.0018	.0274	.0044	.0111	.4045	-.0016
#2	.0113	.0068	-.0160	-.0054	.0272	.0044	.0239	.4092	-.0015

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0005	-.0003	-.0045	.0016	-.0004	.0017	.0056	-.0032	.0723
Stddev	.0005	.0002	.0001	.0007	.0022	.0021	.0022	.0150	.0107
%RSD	106.3	70.43	2.628	45.17	613.6	123.8	39.57	464.1	14.82
#1	-.0008	-.0005	-.0045	.0021	.0012	.0032	.0040	.0074	.0648
#2	-.0001	-.0002	-.0044	.0011	-.0019	.0002	.0072	-.0139	.0799

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0011	.0507	.0009	-.0021	7.053	-.0014	-.0035	-.0041	.0567
Stddev	.0001	.0045	.0000	.0002	.033	.0027	.0028	.0115	.0165
%RSD	5.283	8.904	5.080	8.062	.4651	197.7	79.87	279.2	29.17
#1	-.0011	.0539	.0009	-.0020	7.076	.0005	-.0055	.0040	.0684
#2	-.0010	.0475	.0009	-.0022	7.030	-.0033	-.0015	-.0123	.0450

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0098	.0006	.0234	.0665	.1423	-.0030	.0046	.0007	.0052
Stddev	.0062	.0000	.0076	.0025	.0054	.0027	.0001	.0003	.0112
%RSD	63.01	4.498	32.66	3.807	3.807	89.98	2.623	35.26	216.3
#1	-.0142	.0006	.0287	.0647	.1384	-.0049	.0047	.0005	-.0027
#2	-.0055	.0006	.0180	.0683	.1461	-.0011	.0045	.0009	.0131

Sample Name: L34445-03 Acquired: 1/18/2017 11:27:01 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0006	.0020	.0020
Stddev	.0014	.0004	.0009
%RSD	244.7	18.95	47.82
#1	-.0016	.0018	.0013
#2	.0004	.0023	.0026

Int. Std.	Y_3710
Units	Cts/S
Avg	18460.
Stddev	37.
%RSD	.20260
#1	18487.
#2	18434.

Sample Name: L34445-04 Acquired: 1/18/2017 11:30:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0034**	**.0109**	**-.0145**	**-.0014**	**.0227**	**.0043**	**.0111**	**.4126**	**-.0018**
Stddev	.0033	.0084	.0126	.0004	.0000	.0001	.0022	.0014	.0002
%RSD	97.87	77.56	86.96	26.99	.0929	1.302	19.61	.3464	12.17
#1	-.0010	.0169	-.0234	-.0011	.0227	.0043	.0095	.4116	-.0020
#2	-.0057	.0049	-.0056	-.0017	.0227	.0044	.0126	.4136	-.0017

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.0012**	**-.0034**	**.0034**	**-.0034**	**.0044**	**.0075**	**-.0311**	**.1167**
Stddev	.0001	.0004	.0008	.0023	.0005	.0134	.0047	.0410	.0014
%RSD	16.00	36.07	21.89	66.96	14.24	307.8	63.69	131.8	1.196
#1	-.0008	.0009	-.0040	.0051	-.0031	-.0051	.0041	-.0021	.1157
#2	-.0010	.0015	-.0029	.0018	-.0038	.0138	.0108	-.0602	.1177

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0016**	**.0696**	**-.0002**	**-.0018**	**7.983**	**.0025**	**.0045**	**-.0140**	**.0686**
Stddev	.0003	.0019	.0002	.0013	.028	.0021	.0266	.0092	.0343
%RSD	16.48	2.754	100.2	69.88	.3543	84.38	587.1	66.05	50.03
#1	-.0014	.0682	-.0001	-.0027	8.003	.0010	.0233	-.0074	.0929
#2	-.0018	.0709	-.0004	-.0009	7.963	.0041	-.0143	-.0205	.0444

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0173**	**.0006**	**.0060**	**.0576**	**.1232**	**-.0037**	**.0048**	**.0009**	**.0073**
Stddev	.0133	.0003	.0040	.0001	.0003	.0001	.0000	.0006	.0097
%RSD	77.15	45.44	66.98	.2056	.2056	1.380	.8108	62.44	133.1
#1	-.0267	.0004	.0032	.0575	.1230	-.0036	.0047	.0013	.0142
#2	-.0079	.0007	.0088	.0577	.1234	-.0037	.0048	.0005	.0004

Sample Name: L34445-04 Acquired: 1/18/2017 11:30:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0003	-.0005	-.0006
Stddev	.0010	.0010	.0008
%RSD	339.2	224.0	135.1
#1	.0004	-.0012	-.0011
#2	-.0010	.0003	-.0000

Int. Std.	Y_3710
Units	Cts/S
Avg	18096.
Stddev	19.
%RSD	.10466
#1	18110.
#2	18083.

Sample Name: L34674-01 Acquired: 1/18/2017 11:33:26 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0024**	**.0116**	**-.0121**	**-.0001**	**.0348**	**.0046**	**.0029**	**.8860**	**-.0018**
Stddev	.0007	.0059	.0017	.0015	.0007	.0000	.0017	.0018	.0001
%RSD	31.37	50.77	14.09	1296.	1.874	.8298	58.87	.2073	4.782
#1	-.0019	.0158	-.0133	-.0012	.0343	.0046	.0017	.8873	-.0017
#2	-.0029	.0075	-.0109	.0010	.0352	.0045	.0041	.8847	-.0018

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**-.0027**	**-.0035**	**-.0006**	**-.0006**	**.0058**	**.0078**	**-.0048**	**.1559**
Stddev	.0001	.0005	.0001	.0015	.0014	.0005	.0005	.0048	.0261
%RSD	10.35	20.49	1.810	237.9	217.2	8.882	6.288	100.3	16.76
#1	-.0011	-.0023	-.0034	-.0017	-.0016	.0054	.0075	-.0082	.1374
#2	-.0012	-.0030	-.0035	.0004	.0003	.0061	.0082	-.0014	.1743

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**.0668**	**.0004**	**-.0017**	**9.222**	**.0013**	**.0134**	**-.0048**	**.0684**
Stddev	.0003	.0005	.0002	.0011	.082	.0011	.0138	.0036	.0095
%RSD	27.97	.7115	41.87	63.92	.8892	87.88	102.8	74.14	13.87
#1	-.0009	.0671	.0005	-.0024	9.164	.0021	.0232	-.0023	.0617
#2	-.0013	.0665	.0003	-.0009	9.280	.0005	.0037	-.0073	.0751

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0016**	**.0004**	**.0087**	**.0586**	**.1255**	**-.0028**	**.0066**	**.0013**	**-.0051**
Stddev	.0099	.0000	.0117	.0035	.0075	.0068	.0003	.0003	.0123
%RSD	609.4	11.68	133.5	5.939	5.939	247.1	4.043	19.83	240.5
#1	.0054	.0004	.0170	.0611	.1307	.0021	.0064	.0015	.0036
#2	-.0086	.0004	.0005	.0562	.1202	-.0076	.0068	.0011	-.0138

Sample Name: L34674-01 Acquired: 1/18/2017 11:33:26 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0014	.0069	.0075
Stddev	.0011	.0019	.0015
%RSD	77.17	27.50	20.04
#1	-.0021	.0056	.0064
#2	-.0006	.0083	.0085

Int. Std.	Y_3710
Units	Cts/S
Avg	17937.
Stddev	657.
%RSD	3.6617
#1	18402.
#2	17473.

Sample Name: L34674-01AS Acquired: 1/18/2017 11:36:38 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4567	.9926	.9796	.4874	.5264	.4840	.9707	67.13	.4673
Stddev	.0049	.0123	.0032	.0010	.0046	.0048	.0131	.96	.0045
%RSD	1.064	1.237	.3283	.2027	.8781	1.002	1.348	1.429	.9583
#1	.4601	1.001	.9819	.4881	.5296	.4874	.9800	67.81	.4641
#2	.4532	.9840	.9774	.4867	.5231	.4806	.9615	66.45	.4705

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4704	.4703	.4862	.4890	.4890	.9898	.9959	1.005	96.98
Stddev	.0046	.0045	.0069	.0079	.0041	.0047	.0058	.005	.93
%RSD	.9747	.9624	1.427	1.614	.8359	.4732	.5786	.5053	.9639
#1	.4672	.4671	.4813	.4946	.4919	.9931	1.0000	1.009	97.64
#2	.4736	.4735	.4911	.4834	.4861	.9864	.9918	1.001	96.31

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9795	44.47	.5081	.4851	106.6	.4913	1.046	.9524	4.922
Stddev	.0084	.57	.0049	.0069	.9	.0076	.008	.0048	.044
%RSD	.8604	1.288	.9620	1.424	.8890	1.545	.7596	.5023	.8883
#1	.9854	44.87	.5116	.4802	107.3	.4859	1.041	.9490	4.891
#2	.9735	44.06	.5047	.4900	106.0	.4967	1.052	.9558	4.953

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.955	.9652	1.017	9.797	20.97	.9402	.4932	.9786	1.916
Stddev	.008	.0081	.027	.124	.27	.0087	.0040	.0095	.026
%RSD	.4102	.8443	2.652	1.269	1.269	.9221	.8026	.9670	1.384
#1	1.949	.9709	1.036	9.885	21.15	.9341	.4960	.9853	1.897
#2	1.961	.9594	.9977	9.709	20.78	.9463	.4904	.9719	1.934

Sample Name: L34674-01AS Acquired: 1/18/2017 11:36:38 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4833	.4758	.4835
Stddev	.0021	.0038	.0050
%RSD	.4309	.8002	1.041
#1	.4847	.4731	.4800
#2	.4818	.4785	.4871

Int. Std.	Y_3710
Units	Cts/S
Avg	17568.
Stddev	129.
%RSD	.73406
#1	17659.
#2	17477.

Sample Name: L34674-01ASD Acquired: 1/18/2017 11:39:46 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4527	.9924	1.008	.4935	.5288	.4892	1.010	67.04	.4710
Stddev	.0027	.0037	.017	.0009	.0013	.0020	.020	.83	.0010
%RSD	.5917	.3765	1.660	.1924	.2466	.4125	2.001	1.244	.2054
#1	.4546	.9897	.9964	.4941	.5279	.4906	.9955	67.62	.4717
#2	.4508	.9950	1.020	.4928	.5298	.4877	1.024	66.45	.4703

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4762	.4792	.4922	.4917	.4872	.9970	1.003	.9588	96.48
Stddev	.0024	.0008	.0015	.0025	.0021	.0080	.004	.0119	.23
%RSD	.5061	.1603	.3070	.5149	.4248	.8022	.3967	1.244	.2402
#1	.4779	.4787	.4911	.4935	.4886	1.003	1.006	.9672	96.64
#2	.4745	.4797	.4933	.4899	.4857	.9913	1.000	.9504	96.31

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9874	44.44	.5088	.4816	106.7	.4946	1.061	.9596	4.970
Stddev	.0053	.55	.0024	.0041	.0	.0015	.008	.0063	.041
%RSD	.5376	1.243	.4664	.8550	.0284	.3038	.7859	.6604	.8249
#1	.9837	44.83	.5104	.4787	106.7	.4935	1.055	.9551	4.999
#2	.9912	44.05	.5071	.4845	106.7	.4956	1.067	.9641	4.941

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.989	.9710	1.005	9.821	21.02	.9543	.4937	.9936	1.908
Stddev	.030	.0003	.035	.082	.17	.0002	.0008	.0018	.021
%RSD	1.495	.0303	3.453	.8297	.8297	.0192	.1702	.1774	1.120
#1	1.968	.9708	1.030	9.878	21.14	.9545	.4931	.9949	1.923
#2	2.010	.9712	.9808	9.763	20.89	.9542	.4943	.9924	1.893

Sample Name: L34674-01ASD Acquired: 1/18/2017 11:39:46 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4884	.4752	.4852
Stddev	.0011	.0034	.0006
%RSD	.2351	.7071	.1308
#1	.4893	.4776	.4847
#2	.4876	.4728	.4856

Int. Std.	Y_3710
Units	Cts/S
Avg	17709.
Stddev	36.
%RSD	.20089
#1	17683.
#2	17734.

Sample Name: L34674-02 Acquired: 1/18/2017 11:42:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0019**	**.0244**	**-.0071**	**-.0033**	**.0146**	**.0047**	**.0045**	**1.281**	**-.0015**
Stddev	.0024	.0017	.0006	.0017	.0001	.0001	.0088	.018	.0002
%RSD	130.7	7.031	9.170	51.81	.6188	3.043	196.3	1.381	9.933
#1	-.0001	.0256	-.0066	-.0021	.0147	.0048	-.0017	1.294	-.0014
#2	-.0036	.0232	-.0075	-.0045	.0146	.0046	.0107	1.269	-.0016

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0015**	**.0011**	**-.0042**	**.0025**	**.0010**	**.0063**	**.0077**	**.0048**	**.2685**
Stddev	.0005	.0017	.0001	.0003	.0020	.0020	.0019	.0228	.0091
%RSD	34.50	154.9	2.625	11.52	195.4	32.33	24.31	472.2	3.379
#1	-.0012	-.0001	-.0042	.0027	-.0004	.0077	.0063	.0209	.2620
#2	-.0019	.0023	-.0041	.0023	.0025	.0048	.0090	-.0113	.2749

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**.0589**	**.0082**	**-.0024**	**10.36**	**.0135**	**.0138**	**-.0076**	**.0897**
Stddev	.0004	.0056	.0002	.0017	.01	.0005	.0214	.0108	.0018
%RSD	104.0	9.581	2.068	70.66	.1156	3.371	154.6	141.5	2.044
#1	-.0001	.0629	.0081	-.0012	10.37	.0138	.0290	-.0152	.0884
#2	-.0007	.0549	.0084	-.0036	10.35	.0132	-.0013	.0000	.0910

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0043**	**.0007**	**.0073**	**.0724**	**.1549**	**-.0023**	**.0061**	**.0017**	**-.0051**
Stddev	.0057	.0000	.0158	.0036	.0076	.0011	.0000	.0010	.0061
%RSD	131.9	4.060	214.9	4.906	4.906	47.34	.5554	60.88	121.4
#1	.0083	.0008	-.0038	.0699	.1495	-.0030	.0061	.0010	-.0094
#2	.0003	.0007	.0185	.0749	.1603	-.0015	.0061	.0024	-.0007

Sample Name: L34674-02 Acquired: 1/18/2017 11:42:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0010	.0603	.0597
Stddev	.0014	.0003	.0001
%RSD	142.2	.5361	.1192
#1	.0020	.0606	.0596
#2	-.0000	.0601	.0597

Int. Std.	Y_3710
Units	Cts/S
Avg	18686.
Stddev	534.
%RSD	2.8568
#1	19064.
#2	18309.

Sample Name: CCV Acquired: 1/18/2017 11:46:06 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4994	1.048	1.981	1.025	1.018	1.028	.9945	50.57	.9735
Stddev	.0054	.013	.020	.001	.010	.014	.0052	.81	.0080
%RSD	1.073	1.207	1.004	.1366	.9980	1.314	.5221	1.606	.8256
#1	.5032	1.057	1.995	1.026	1.025	1.038	.9981	51.15	.9792
#2	.4956	1.039	1.967	1.024	1.011	1.019	.9908	50.00	.9679
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9837	.9656	.9868	.9933	1.021	.9954	1.009	.9930	10.17
Stddev	.0023	.0082	.0051	.0089	.010	.0292	.010	.0106	.16
%RSD	.2297	.8464	.5118	.8975	.9784	2.935	.9505	1.063	1.562
#1	.9853	.9714	.9904	.9996	1.029	1.016	1.016	.9855	10.29
#2	.9821	.9598	.9832	.9870	1.014	.9747	1.002	1.000	10.06
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.033	50.45	.9961	1.021	51.93	1.031	2.606	1.900	25.58
Stddev	.010	.81	.0158	.001	.56	.002	.028	.008	.06
%RSD	.9963	1.614	1.584	.0873	1.074	.2114	1.065	.4350	.2234
#1	1.040	51.03	1.007	1.022	52.33	1.032	2.626	1.894	25.62
#2	1.026	49.88	.9849	1.020	51.54	1.029	2.587	1.906	25.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/18/2017 11:46:06 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.077**	**1.018**	**2.013**	**9.857**	F **21.09**	**1.001**	**1.023**	**1.024**	**1.969**
Stddev	.011	.014	.008	.143	.31	.004	.010	.013	.030
%RSD	.5094	1.407	.4010	1.448	1.448	.4099	.9977	1.311	1.545
#1	2.085	1.028	2.019	9.957	21.31	1.003	1.030	1.033	1.990
#2	2.070	1.008	2.007	9.756	20.88	.9977	1.015	1.014	1.947
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**1.026**	**.9609**	**.9881**
Stddev	.017	.0133	.0089
%RSD	1.669	1.389	.9051
#1	1.038	.9704	.9944
#2	1.014	.9515	.9817
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**17782.**
Stddev	23.
%RSD	.12865
#1	17799.
#2	17766.

Sample Name: CCB Acquired: 1/18/2017 11:49:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0023**	**.0063**	**-.0145**	**-.0038**	**.0018**	**.0050**	**.0089**	**-.0185**	**-.0017**
Stddev	.0004	.0007	.0046	.0044	.0000	.0000	.0125	.0020	.0007
%RSD	19.33	11.48	31.54	117.7	.5740	.9991	139.9	10.95	40.97
#1	-.0020	.0069	-.0177	-.0069	.0018	.0050	.0177	-.0199	-.0012
#2	-.0026	.0058	-.0113	-.0006	.0018	.0050	.0001	-.0170	-.0023
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**-.0018**	**-.0018**	**.0019**	**-.0008**	**-.0039**	**.0034**	**.0070**	**-.0432**
Stddev	.0004	.0027	.0007	.0013	.0024	.0017	.0001	.0038	.0216
%RSD	83.38	148.7	37.52	69.13	283.1	42.62	1.519	54.39	49.97
#1	-.0009	-.0037	-.0013	.0029	.0008	-.0028	.0034	.0043	-.0280
#2	-.0002	.0001	-.0023	.0010	-.0025	-.0051	.0034	.0097	-.0585
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0008**	**.0287**	**-.0014**	**-.0024**	**.0346**	**.0028**	**.0217**	**-.0078**	**.0482**
Stddev	.0006	.0317	.0003	.0015	.0053	.0001	.0004	.0036	.0132
%RSD	72.98	110.2	24.10	63.24	15.44	2.613	1.963	46.48	27.35
#1	-.0012	.0511	-.0017	-.0035	.0384	.0029	.0220	-.0103	.0575
#2	-.0004	.0063	-.0012	-.0013	.0308	.0028	.0214	-.0052	.0389
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/18/2017 11:49:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0070**	**.0012**	**.0082**	**.0090**	**.0193**	**-.0035**	**.0026**	**.0010**	**-.0102**
Stddev	.0038	.0002	.0070	.0017	.0036	.0030	.0000	.0002	.0007
%RSD	54.83	18.16	84.79	18.84	18.84	86.05	1.887	19.73	6.814
#1	-.0043	.0011	.0132	.0078	.0167	-.0056	.0026	.0011	-.0107
#2	-.0097	.0014	.0033	.0102	.0218	-.0014	.0026	.0008	-.0097
Check ?	Chk Pass	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	**-.0010**	**-.0009**	**-.0014**
Stddev	.0010	.0006	.0003
%RSD	105.5	60.75	24.15
#1	-.0003	-.0005	-.0011
#2	-.0017	-.0013	-.0016
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**18049.**
Stddev	55.
%RSD	.30337
#1	18010.
#2	18087.

Sample Name: L34674-03 Acquired: 1/18/2017 11:52:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000	.0094	-.0108	-.0009	.0252	.0044	-.0014	.4876	-.0010
Stddev	.0019	.0111	.0088	.0014	.0008	.0002	.0080	.0039	.0001
%RSD	6414.	118.7	81.98	146.8	3.262	4.169	583.6	.8084	5.840
#1	.0014	.0015	-.0045	.0000	.0258	.0043	.0043	.4904	-.0010
#2	-.0013	.0173	-.0170	-.0019	.0246	.0046	-.0071	.4848	-.0010

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0006	.0000	-.0025	.0013	.0008	.0003	.0033	.0024	.1842
Stddev	.0005	.0026	.0008	.0004	.0018	.0014	.0001	.0120	.0051
%RSD	96.23	6248.	32.03	29.45	224.4	495.8	3.391	491.6	2.768
#1	-.0002	.0019	-.0030	.0015	-.0005	.0013	.0033	.0109	.1878
#2	-.0010	-.0018	-.0019	.0010	.0021	-.0007	.0034	-.0060	.1806

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0006	.0414	.0403	-.0031	6.716	.0017	-.0155	-.0104	.0398
Stddev	.0002	.0108	.0021	.0027	.269	.0046	.0166	.0011	.0103
%RSD	39.11	26.03	5.306	87.02	3.998	274.0	107.3	10.57	25.83
#1	-.0007	.0338	.0418	-.0051	6.905	.0050	-.0272	-.0112	.0470
#2	-.0004	.0491	.0388	-.0012	6.526	-.0016	-.0037	-.0096	.0325

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0149	.0007	.0064	.1249	.2674	-.0024	.0047	.0011	-.0006
Stddev	.0162	.0003	.0067	.0051	.0109	.0056	.0002	.0003	.0006
%RSD	109.0	46.69	104.8	4.073	4.073	229.0	4.066	30.27	87.20
#1	-.0263	.0009	.0017	.1285	.2751	.0015	.0048	.0009	-.0011
#2	-.0034	.0004	.0111	.1213	.2597	-.0064	.0046	.0014	-.0002

Sample Name: L34674-03 Acquired: 1/18/2017 11:52:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0006	.3187	.3172
Stddev	.0006	.0148	.0104
%RSD	101.4	4.658	3.294
#1	-.0002	.3292	.3246
#2	-.0011	.3082	.3098

Int. Std.	Y_3710
Units	Cts/S
Avg	18550.
Stddev	783.
%RSD	4.2208
#1	17996.
#2	19104.

Sample Name: L34674-04 Acquired: 1/18/2017 11:55:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0039**	**.0192**	**-.0121**	**-.0052**	**.0299**	**.0045**	**.0086**	**.2816**	**-.0010**
Stddev	.0012	.0010	.0200	.0009	.0002	.0000	.0274	.0054	.0001
%RSD	29.95	5.057	164.4	17.14	.7793	.9913	318.9	1.919	8.918
#1	.0031	.0185	-.0263	-.0046	.0301	.0045	.0279	.2855	-.0011
#2	.0047	.0198	.0020	-.0059	.0297	.0046	-.0108	.2778	-.0009

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0006**	**-.0005**	**-.0052**	**.0027**	**.0005**	**.0030**	**.0075**	**.0163**	**.1198**
Stddev	.0003	.0008	.0007	.0007	.0004	.0035	.0011	.0007	.0333
%RSD	48.43	165.2	12.69	25.34	72.95	117.0	15.02	4.287	27.79
#1	-.0009	-.0011	-.0057	.0031	.0007	.0054	.0083	.0158	.1433
#2	-.0004	.0001	-.0048	.0022	.0002	.0005	.0067	.0168	.0962

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0182**	**.0231**	**-.0016**	**7.865**	**-.0001**	**-.0182**	**-.0130**	**.0671**
Stddev	.0002	.0299	.0011	.0054	.092	.0044	.0124	.0099	.0070
%RSD	28.80	163.8	4.875	350.9	1.172	3447.	68.40	75.94	10.45
#1	-.0009	.0393	.0239	.0023	7.930	-.0032	-.0270	-.0200	.0622
#2	-.0006	-.0029	.0223	-.0054	7.800	.0030	-.0094	-.0060	.0721

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0054**	**.0003**	**.0092**	**.0843**	**.1804**	**-.0036**	**.0038**	**.0009**	**-.0102**
Stddev	.0071	.0000	.0094	.0052	.0111	.0134	.0001	.0004	.0004
%RSD	132.4	13.54	102.3	6.130	6.130	371.0	1.390	41.06	4.390
#1	-.0003	.0003	.0026	.0880	.1882	-.0131	.0038	.0007	-.0105
#2	-.0105	.0003	.0159	.0806	.1726	.0059	.0037	.0012	-.0099

Sample Name: L34674-04 Acquired: 1/18/2017 11:55:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0018	.3382	.3403
Stddev	.0036	.0111	.0135
%RSD	197.3	3.291	3.955
#1	-.0007	.3461	.3499
#2	.0043	.3303	.3308

Int. Std.	Y_3710
Units	Cts/S
Avg	19343.
Stddev	420.
%RSD	2.1734
#1	19046.
#2	19640.

Sample Name: L34674-04SDL Acquired: 1/18/2017 11:58:50 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012	.0062	-.0217	-.0024	.0070	.0044	.0133	.0212	-.0013
Stddev	.0016	.0034	.0035	.0023	.0000	.0001	.0048	.0099	.0006
%RSD	135.6	54.76	16.07	95.97	.3970	1.446	36.16	46.56	46.00
#1	.0023	.0038	-.0242	-.0040	.0070	.0044	.0167	.0282	-.0017
#2	.0000	.0086	-.0193	-.0008	.0070	.0043	.0099	.0142	-.0009

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0007	-.0022	-.0053	.0009	-.0025	.0034	.0032	-.0084	-.0206
Stddev	.0002	.0003	.0008	.0001	.0009	.0035	.0001	.0151	.0195
%RSD	27.23	12.81	14.52	6.207	35.53	102.6	4.710	179.9	94.69
#1	-.0005	-.0024	-.0047	.0010	-.0019	.0009	.0033	.0023	-.0068
#2	-.0008	-.0020	-.0058	.0009	-.0031	.0059	.0031	-.0191	-.0344

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0015	-.0033	.0028	-.0012	1.610	.0015	-.0132	-.0094	.0359
Stddev	.0001	.0006	.0002	.0010	.005	.0004	.0203	.0053	.0115
%RSD	4.268	17.33	7.344	84.41	.3347	24.90	153.8	56.62	32.07
#1	-.0015	-.0029	.0027	-.0019	1.614	.0012	.0012	-.0132	.0441
#2	-.0016	-.0037	.0030	-.0005	1.606	.0017	-.0276	-.0056	.0278

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0042	.0004	.0087	.0123	.0263	.0093	.0023	.0009	.0134
Stddev	.0043	.0002	.0053	.0024	.0050	.0091	.0000	.0006	.0165
%RSD	102.5	41.39	60.28	19.19	19.19	98.13	.0774	69.19	123.5
#1	-.0012	.0003	.0125	.0106	.0227	.0157	.0023	.0005	.0251
#2	-.0072	.0006	.0050	.0139	.0298	.0028	.0023	.0013	.0017

Sample Name: L34674-04SDL Acquired: 1/18/2017 11:58:50 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0011	.0674	.0699
Stddev	.0010	.0019	.0014
%RSD	90.98	2.808	2.034
#1	-.0004	.0687	.0709
#2	-.0018	.0660	.0689

Int. Std.	Y_3710
Units	Cts/S
Avg	18298.
Stddev	64.
%RSD	.34724
#1	18343.
#2	18253.

Sample Name: L34674-05 Acquired: 1/18/2017 12:02:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0016**	**.0124**	**-.0158**	**-.0058**	**.0271**	**.0044**	**.0039**	**5.020**	**-.0002**
Stddev	.0008	.0079	.0001	.0015	.0002	.0001	.0080	.001	.0002
%RSD	48.29	63.48	.6997	25.80	.6415	2.728	205.6	.0100	163.2
#1	-.0021	.0180	-.0158	-.0068	.0270	.0045	-.0018	5.019	.0000
#2	-.0010	.0069	-.0159	-.0047	.0272	.0043	.0095	5.020	-.0003

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008**	**-.0001**	**-.0026**	**.0026**	**.0006**	**.0021**	**.0070**	**-.0192**	**.0682**
Stddev	.0005	.0009	.0004	.0012	.0018	.0004	.0016	.0180	.0157
%RSD	65.57	992.8	14.93	47.39	302.3	18.21	23.52	93.54	22.95
#1	.0012	.0005	-.0029	.0035	.0018	.0018	.0081	-.0319	.0571
#2	.0004	-.0007	-.0023	.0017	-.0007	.0024	.0058	-.0065	.0793

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**.0593**	**.0393**	**-.0035**	**8.263**	**.0045**	**.0113**	**-.0021**	**.0945**
Stddev	.0001	.0057	.0000	.0001	.025	.0000	.0280	.0070	.0161
%RSD	28.83	9.593	.0678	3.919	.3007	.5521	247.0	325.5	17.06
#1	-.0003	.0634	.0393	-.0036	8.246	.0044	.0311	.0028	.1059
#2	-.0005	.0553	.0393	-.0034	8.281	.0045	-.0084	-.0071	.0831

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0120**	**.0005**	**-.0109**	**.0571**	**.1222**	**.0036**	**.0093**	**.0006**	**-.0099**
Stddev	.0164	.0001	.0113	.0018	.0039	.0003	.0000	.0004	.0049
%RSD	136.1	19.69	103.3	3.157	3.157	7.037	.4193	64.91	49.67
#1	-.0236	.0004	-.0029	.0559	.1195	.0034	.0093	.0009	-.0064
#2	-.0005	.0006	-.0189	.0584	.1250	.0037	.0093	.0004	-.0133

Sample Name: L34674-05 Acquired: 1/18/2017 12:02:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0007	.1116	.1122
Stddev	.0015	.0002	.0014
%RSD	225.5	.1430	1.268
#1	.0017	.1115	.1112
#2	-.0004	.1117	.1132

Int. Std.	Y_3710
Units	Cts/S
Avg	18421.
Stddev	479.
%RSD	2.5987
#1	18760.
#2	18083.

Sample Name: L34674-06 Acquired: 1/18/2017 12:05:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0029**	**.0202**	**-.0169**	**-.0011**	**.0127**	**.0043**	**.0136**	**.8801**	**-.0013**
Stddev	.0001	.0008	.0100	.0036	.0002	.0000	.0057	.0107	.0004
%RSD	2.686	4.018	58.79	337.3	1.520	.7517	41.58	1.213	27.03
#1	-.0028	.0208	-.0240	-.0036	.0126	.0043	.0176	.8877	-.0011
#2	-.0029	.0196	-.0099	.0015	.0128	.0043	.0096	.8726	-.0016

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0001**	**-.0003**	**-.0042**	**.0022**	**-.0003**	**.0006**	**.0083**	**-.0011**	**.0401**
Stddev	.0006	.0009	.0021	.0030	.0006	.0011	.0002	.0027	.0062
%RSD	968.0	263.9	48.43	139.6	191.2	176.5	2.404	242.5	15.44
#1	-.0005	-.0010	-.0057	.0043	-.0007	-.0002	.0081	-.0030	.0445
#2	.0003	.0003	-.0028	.0000	.0001	.0014	.0084	.0008	.0357

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0012**	**.0076**	**.0156**	**-.0018**	**4.405**	**.0028**	**.0236**	**-.0055**	**.1230**
Stddev	.0000	.0092	.0002	.0004	.001	.0012	.0371	.0104	.0225
%RSD	2.287	121.1	1.235	22.73	.0169	43.73	157.2	188.8	18.27
#1	-.0012	.0011	.0154	-.0015	4.405	.0019	.0498	-.0129	.1071
#2	-.0011	.0141	.0157	-.0020	4.404	.0037	-.0026	.0018	.1388

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0079**	**.0008**	**-.0107**	**.0606**	**.1297**	**.0064**	**.0043**	**.0009**	**-.0080**
Stddev	.0035	.0000	.0217	.0012	.0026	.0003	.0000	.0007	.0007
%RSD	44.76	1.688	202.0	2.021	2.021	4.722	.5596	74.83	8.297
#1	-.0104	.0007	-.0260	.0597	.1278	.0061	.0043	.0014	-.0075
#2	-.0054	.0008	.0046	.0615	.1315	.0066	.0043	.0004	-.0084

Sample Name: L34674-06 Acquired: 1/18/2017 12:05:16 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0003	.1229	.1252
Stddev	.0003	.0026	.0009
%RSD	114.4	2.097	.7386
#1	.0005	.1211	.1245
#2	.0001	.1247	.1258

Int. Std.	Y_3710
Units	Cts/S
Avg	18615.
Stddev	385.
%RSD	2.0680
#1	18888.
#2	18343.

Sample Name: L34674-07 Acquired: 1/18/2017 12:08:28 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	.0168	-.0006	-.0048	.0408	.0044	.0114	6.800	-.0015
Stddev	.0019	.0011	.0131	.0041	.0000	.0000	.0017	.073	.0000
%RSD	785.2	6.703	2266.	85.45	.0627	.1508	14.48	1.076	2.278
#1	.0011	.0160	-.0098	-.0019	.0409	.0044	.0126	6.852	-.0015
#2	-.0016	.0176	.0087	-.0076	.0408	.0044	.0102	6.749	-.0015

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0016	-.0029	-.0045	.0033	-.0006	.0059	.0085	-.0230	.0305
Stddev	.0002	.0009	.0014	.0022	.0035	.0035	.0007	.0208	.0360
%RSD	15.05	31.03	31.53	64.40	604.6	60.54	8.765	90.29	118.0
#1	-.0017	-.0023	-.0035	.0018	-.0031	.0034	.0090	-.0377	.0560
#2	-.0014	-.0035	-.0056	.0049	.0019	.0084	.0080	-.0083	.0050

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0009	.4018	.0031	-.0031	8.973	-.0001	.0186	-.0083	.0835
Stddev	.0003	.0154	.0007	.0027	.009	.0016	.0207	.0005	.0073
%RSD	33.31	3.825	23.41	87.16	.1047	1165.	111.1	6.217	8.711
#1	-.0007	.4126	.0026	-.0051	8.979	.0010	.0040	-.0086	.0783
#2	-.0011	.3909	.0036	-.0012	8.966	-.0013	.0332	-.0079	.0886

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0139	.0005	.0052	.1096	.2346	.0014	.0172	.0007	.0077
Stddev	.0042	.0002	.0118	.0003	.0006	.0043	.0001	.0003	.0126
%RSD	30.28	33.56	228.8	.2428	.2428	305.1	.4694	37.90	163.6
#1	-.0109	.0006	-.0032	.1095	.2342	-.0016	.0172	.0009	.0166
#2	-.0168	.0004	.0135	.1098	.2350	.0044	.0171	.0005	-.0012

Sample Name: L34674-07 Acquired: 1/18/2017 12:08:28 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0007	.0729	.0721
Stddev	.0001	.0003	.0018
%RSD	8.482	.4437	2.520
#1	-.0007	.0726	.0708
#2	-.0008	.0731	.0734

Int. Std.	Y_3710
Units	Cts/S
Avg	18634.
Stddev	248.
%RSD	1.3316
#1	18809.
#2	18458.

Sample Name: L34674-08 Acquired: 1/18/2017 12:11:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0036**	**.0271**	**-.0153**	**-.0056**	**.0456**	**.0045**	**.0070**	**7.845**	**-.0019**
Stddev	.0002	.0003	.0148	.0046	.0002	.0000	.0223	.080	.0001
%RSD	6.522	1.287	96.91	81.88	.3692	.8791	318.2	1.023	5.726
#1	-.0038	.0273	-.0258	-.0088	.0457	.0044	-.0088	7.902	-.0018
#2	-.0035	.0269	-.0048	-.0024	.0455	.0045	.0228	7.789	-.0020

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**-.0010**	**-.0034**	**.0014**	**-.0024**	**-.0002**	**.0104**	**.0032**	**.0819**
Stddev	.0002	.0011	.0009	.0030	.0052	.0019	.0009	.0029	.0041
%RSD	20.27	120.9	25.85	213.4	217.3	909.5	8.247	89.38	4.965
#1	-.0013	-.0001	-.0041	-.0007	-.0061	-.0016	.0111	.0052	.0791
#2	-.0010	-.0018	-.0028	.0035	.0013	.0012	.0098	.0012	.0848

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0008**	**.1375**	**.0353**	**-.0022**	**8.188**	**.0002**	**.0326**	**.0018**	**.0644**
Stddev	.0000	.0079	.0002	.0018	.039	.0010	.0054	.0046	.0198
%RSD	6.030	5.777	.6778	79.52	.4790	535.4	16.57	262.9	30.77
#1	-.0008	.1319	.0355	-.0035	8.216	-.0005	.0287	-.0015	.0784
#2	-.0009	.1431	.0351	-.0010	8.160	.0009	.0364	.0050	.0504

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0055**	**.0004**	**.0026**	**.1186**	**.2539**	**.0058**	**.0096**	**.0017**	**.0033**
Stddev	.0151	.0003	.0006	.0047	.0100	.0170	.0000	.0003	.0180
%RSD	272.6	64.14	23.49	3.924	3.924	295.5	.4577	18.15	552.5
#1	-.0051	.0006	.0022	.1153	.2468	-.0063	.0097	.0014	.0160
#2	.0162	.0002	.0030	.1219	.2609	.0178	.0096	.0019	-.0095

Sample Name: L34674-08 Acquired: 1/18/2017 12:11:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0008	.0544	.0552
Stddev	.0016	.0013	.0000
%RSD	206.6	2.449	.0831
#1	.0019	.0534	.0552
#2	-.0004	.0553	.0551

Int. Std.	Y_3710
Units	Cts/S
Avg	18581.
Stddev	214.
%RSD	1.1518
#1	18733.
#2	18430.

Sample Name: L34674-09 Acquired: 1/18/2017 12:14:51 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0022**	**.0088**	**-.0158**	**-.0031**	**.0083**	**.0044**	**.0098**	**.5452**	**-.0014**
Stddev	.0003	.0073	.0026	.0001	.0000	.0001	.0089	.0137	.0002
%RSD	11.84	83.56	16.51	1.700	.0722	1.590	90.28	2.506	14.66
#1	-.0023	.0140	-.0176	-.0031	.0083	.0045	.0036	.5549	-.0015
#2	-.0020	.0036	-.0140	-.0030	.0083	.0044	.0161	.5356	-.0013

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0009**	**.0042**	**-.0045**	**.0029**	**.0000**	**-.0043**	**.0067**	**.0060**	**.0192**
Stddev	.0007	.0007	.0018	.0038	.0030	.0015	.0009	.0244	.0122
%RSD	74.25	15.71	39.77	131.9	9390.	35.42	13.45	404.3	63.41
#1	-.0014	.0046	-.0058	.0055	.0021	-.0032	.0060	-.0112	.0106
#2	-.0004	.0037	-.0032	.0002	-.0021	-.0054	.0073	.0233	.0278

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0010**	**.0225**	**.0064**	**-.0018**	**4.721**	**.0020**	**.0116**	**-.0128**	**.0700**
Stddev	.0004	.0040	.0000	.0019	.020	.0002	.0103	.0034	.0090
%RSD	45.67	17.93	.3771	103.7	.4195	10.10	89.14	26.66	12.81
#1	-.0013	.0254	.0064	-.0005	4.735	.0022	.0043	-.0152	.0637
#2	-.0007	.0197	.0064	-.0032	4.707	.0019	.0189	-.0104	.0764

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0019**	**.0003**	**.0008**	**.0508**	**.1088**	**.0034**	**.0035**	**.0013**	**-.0207**
Stddev	.0196	.0000	.0097	.0069	.0148	.0025	.0000	.0006	.0140
%RSD	1043.	6.787	1246.	13.63	13.63	72.87	1.275	50.35	67.89
#1	-.0120	.0003	.0076	.0459	.0983	.0016	.0035	.0008	-.0108
#2	.0157	.0003	-.0061	.0557	.1193	.0052	.0034	.0017	-.0306

Sample Name: L34674-09 Acquired: 1/18/2017 12:14:51 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0003	.0543	.0538
Stddev	.0025	.0001	.0015
%RSD	748.6	.2636	2.722
#1	-.0014	.0544	.0527
#2	.0021	.0542	.0548

Int. Std.	Y_3710
Units	Cts/S
Avg	18653.
Stddev	67.
%RSD	.36086
#1	18605.
#2	18700.

Sample Name: L34674-10 Acquired: 1/18/2017 12:18:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0008**	**.0143**	**-.0138**	**-.0049**	**.0047**	**.0043**	**-.0056**	**.5939**	**-.0012**
Stddev	.0010	.0005	.0088	.0014	.0000	.0000	.0068	.0004	.0009
%RSD	126.2	3.342	63.94	27.71	1.002	.3312	121.4	.0675	70.71
#1	-.0001	.0139	-.0201	-.0059	.0047	.0043	-.0105	.5942	-.0006
#2	-.0015	.0146	-.0076	-.0040	.0048	.0043	-.0008	.5936	-.0019

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0010**	**-.0014**	**-.0045**	**.0037**	**.0017**	**.0006**	**.0092**	**.0223**	**.0006**
Stddev	.0002	.0018	.0020	.0031	.0049	.0086	.0016	.0017	.0048
%RSD	20.43	130.6	43.48	85.13	297.1	1549.	17.20	7.626	806.8
#1	-.0012	-.0027	-.0031	.0015	.0052	-.0055	.0081	.0235	.0040
#2	-.0009	-.0001	-.0059	.0059	-.0018	.0067	.0103	.0211	-.0028

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0013**	**.0074**	**.0029**	**-.0016**	**2.655**	**.0011**	**.0249**	**-.0083**	**.0885**
Stddev	.0007	.0062	.0003	.0037	.006	.0009	.0086	.0105	.0051
%RSD	58.90	83.38	10.52	232.8	.2228	84.12	34.59	126.5	5.776
#1	-.0018	.0117	.0027	.0010	2.659	.0004	.0310	-.0009	.0922
#2	-.0007	.0030	.0031	-.0042	2.651	.0018	.0188	-.0158	.0849

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0024**	**.0004**	**.0158**	**.0505**	**.1080**	**-.0030**	**.0028**	**.0014**	**.0073**
Stddev	.0063	.0001	.0054	.0061	.0131	.0012	.0000	.0002	.0071
%RSD	268.3	28.64	34.55	12.11	12.11	39.57	.3811	16.61	96.05
#1	.0069	.0005	.0196	.0548	.1173	-.0022	.0028	.0012	.0123
#2	-.0021	.0003	.0119	.0462	.0988	-.0039	.0028	.0015	.0024

Sample Name: L34674-10 Acquired: 1/18/2017 12:18:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 20 Custom ID3:
Comment: WG416336

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0010	.0650	.0682
Stddev	.0040	.0007	.0010
%RSD	389.4	1.122	1.445
#1	.0038	.0645	.0675
#2	-.0018	.0656	.0689

Int. Std.	Y_3710
Units	Cts/S
Avg	18628.
Stddev	120.
%RSD	.64517
#1	18713.
#2	18543.

Sample Name: CCV Acquired: 1/18/2017 12:24:28 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5019	1.044	2.012	1.035	1.026	1.029	.9982	50.34	.9746
Stddev	.0036	.018	.008	.010	.004	.009	.0143	.52	.0047
%RSD	.7138	1.759	.4190	.9357	.3985	.8364	1.437	1.026	.4777
#1	.5044	1.057	2.018	1.042	1.029	1.035	1.008	50.71	.9779
#2	.4994	1.031	2.006	1.028	1.023	1.023	.9881	49.98	.9713
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9809	.9663	.9896	.9861	1.019	1.009	1.010	.9987	10.22
Stddev	.0111	.0025	.0079	.0114	.006	.008	.004	.0058	.04
%RSD	1.129	.2568	.7936	1.160	.5517	.7668	.3916	.5774	.3949
#1	.9888	.9680	.9952	.9942	1.023	1.014	1.013	.9946	10.25
#2	.9731	.9645	.9841	.9780	1.015	1.003	1.007	1.003	10.19
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.043	50.11	1.004	1.017	51.80	1.042	2.586	1.909	26.20
Stddev	.006	.53	.004	.001	.24	.001	.044	.004	.18
%RSD	.5586	1.065	.4286	.0831	.4663	.0645	1.720	.1923	.6869
#1	1.047	50.48	1.007	1.017	51.97	1.042	2.617	1.906	26.33
#2	1.039	49.73	1.001	1.016	51.63	1.041	2.555	1.911	26.08
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/18/2017 12:24:28 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.067	1.022	2.033	9.843	F 21.06	1.005	1.028	1.024	1.968
Stddev	.008	.007	.002	.079	.17	.013	.005	.008	.003
%RSD	.3780	.6534	.1152	.8069	.8069	1.333	.5093	.7435	.1720
#1	2.072	1.027	2.035	9.899	21.18	1.014	1.032	1.029	1.970
#2	2.061	1.017	2.032	9.787	20.94	.9955	1.024	1.018	1.966
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.024	.9590	.9828
Stddev	.008	.0026	.0079
%RSD	.7900	.2733	.8078
#1	1.030	.9608	.9885
#2	1.019	.9571	.9772
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	17871.
Stddev	90.
%RSD	.50562
#1	17934.
#2	17807.

Sample Name: CCB Acquired: 1/18/2017 12:27:33 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**.0092**	**-.0022**	**-.0023**	**.0018**	**.0050**	**-.0007**	**-.0098**	**-.0008**
Stddev	.0023	.0031	.0025	.0032	.0001	.0002	.0210	.0027	.0002
%RSD	543.3	34.12	114.2	135.6	6.776	3.445	3187.	27.79	22.54
#1	.0012	.0070	-.0039	-.0001	.0019	.0051	-.0155	-.0118	-.0007
#2	-.0021	.0114	-.0004	-.0046	.0017	.0048	.0142	-.0079	-.0009
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0010**	**.0001**	**-.0034**	**.0046**	**-.0017**	**-.0046**	**.0035**	**-.0107**	**-.0613**
Stddev	.0009	.0029	.0004	.0045	.0056	.0014	.0001	.0334	.0045
%RSD	91.55	2244.	12.10	95.92	336.7	29.89	3.249	311.6	7.297
#1	-.0016	-.0019	-.0031	.0078	.0023	-.0037	.0036	-.0344	-.0582
#2	-.0003	.0021	-.0037	.0015	-.0056	-.0056	.0034	.0129	-.0645
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**.0191**	**-.0014**	**-.0049**	**.0271**	**.0003**	**-.0078**	**-.0057**	**.0662**
Stddev	.0002	.0116	.0000	.0012	.0027	.0038	.0162	.0123	.0003
%RSD	29.51	60.60	2.770	25.46	9.846	1463.	207.3	214.8	.4380
#1	-.0004	.0273	-.0013	-.0040	.0290	-.0024	.0036	.0030	.0664
#2	-.0006	.0109	-.0014	-.0058	.0252	.0029	-.0193	-.0144	.0660
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/18/2017 12:27:33 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0033**	**.0012**	**.0050**	**.0056**	**.0121**	**.0020**	**.0027**	**.0013**	**-.0098**
Stddev	.0001	.0000	.0009	.0021	.0045	.0016	.0001	.0008	.0053
%RSD	4.015	3.225	18.35	37.30	37.30	77.79	3.205	62.15	53.77
#1	.0032	.0012	.0056	.0071	.0153	.0031	.0026	.0007	-.0135
#2	.0034	.0011	.0043	.0042	.0089	.0009	.0027	.0018	-.0061
Check ?	Chk Pass	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	**-.0009**	**-.0026**	**-.0009**
Stddev	.0008	.0023	.0007
%RSD	82.43	87.61	83.53
#1	-.0004	-.0010	-.0004
#2	-.0015	-.0042	-.0014
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	**18239.**
Stddev	170.
%RSD	.93041
#1	18359.
#2	18119.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52603	PCN	Nitric acid:	52603	PCN
Hydrochloric acid:	52400	PCN	Hydrochloric acid:	52602	PCN

VERIFIED BY: AEB 1/18/17

ICP HW

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-D-846
Group ID: MA-G-ICP_-HW
Method Ref: M6010B
SOP Ref: SOPII012

WG416030

ACZ Laboratories, Inc

Instrument ID: ICP~~7~~8 VEB 1/12/17
Analyst: GSS
ACZ Dept: 33
Create Date: 01/11/2017 13:34
Start Date/Time: 1/11/17 2P
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	BHW	Dilution
1	WG416030ICV	II161209-1			1			✓	1
2	WG416030ICB	NONE			1			✓	1
3	WG416030PQV	II161228-3			1			✓	1
4	WG416030ICSAB	II161031-5			1			✓	1
5	WG415942PBS	NONE			5			✓	5
6	L34445-01	TP-6_7_9 (2-5)			5	0.164		✓	5
7	L34445-01DUP	NONE			5			✓	5
8	L34445-02	TP-12 (2-4)			5	0.364		✓	5
9	L34445-03	TP-15_16 (2-13)			5	0.181		✓	5
10	L34445-04	TP-20 (1-4)			5	0.125		✓	5
11	L34674-01	SB-06GT (1.5-10)			5	0.374		✓	5
12	L34674-01AS	II170109-2			1			✓	5
13	WG416030CCV1	II161227-1			1			✓	1
14	WG416030CCB1	NONE			1			✓	1
15	L34674-01ASD	II170109-2			1			✓	5
16	L34674-02	SB-07GT (0-4)			5	0.174		✓	5
17	L34674-03	SB-09GT (8-12)			5	0.28		✓	5
18	L34674-04	SB-09GT (18-22)			5	0.23		✓	5
19	L34674-04SDL	NONE			1			✓	5
20	L34674-05	SB-12GT (0-27)			5	0.356		✓	5
21	L34674-06	SB-13AL (0-25)			5	0.402		✓	5
22	L34674-07	SB-14AL (0-15)			5	0.329		✓	5
23	L34674-08	SB-14AL (15-35)			5	0.415		✓	5

Report Comments: _____

Internal Comments _____

AREV: VEB 1/12/17
Initials, Date

SREV: 1·12·17
Initials, Date

ICP HW

QC List Type: QC-ICP-846
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: MA-ICP-D-846
Group ID: MA-G-ICP_-HW
Method Ref: M6010B
SOP Ref: SOPII012

WG416030

ACZ Laboratories, Inc

Instrument ID: ICP7
Analyst:
ACZ Dept: 33
Create Date: 01/11/2017 13:34
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	BHW	Dilution
24	L34674-09	SB-15AL (0-25)			5	0.235		✔	5
25	WG416030CCV2	II161227-1			1			✔	1
26	WG416030CCB2	NONE			1			✔	1
27	L34674-10	SB-15AL (25-50)			5	0.239		✔	5
28	L34674-14	SB-09GT (8-12-DUPLIC			5	0.242		✔	5
29	WG416030CCV3	II161227-1						✔	
30	WG416030CCB3	NONE						✔	

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L34674-1701201346

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	LSEB
Date:	1/12/17
Approved By:	[illegible]
Date:	1-12-17

Work Group:	WG416030
Sample Type:	HW
Analysis Date:	1/11/17
Analyst:	LSEB

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	√		
2) Are all of the QC critera listed in LIMS within specified limits? **		√	
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			√
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	√		
5) Is a current standard/reagent form attached to the workgroup?	√		
6) Have all dilutions performed at the bench been checked off on the benchsheet?			√
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			√
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			√
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			√
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			√
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	√		

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
L34445.01 DUP	B RPD=20%	RA

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416030

Date Reported: 12-Jan-17
Run ID: R1491780
Date Analyzed: 11-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416030ICV

Tag:

Measured: 1/11/2017 4:09:22 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	1.985	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	99	1		%	++	0.01	0.05			
SREV	BORON	RSD	2.312	1		mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND	1.943	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND	1.947	1		mg/L	++	0.005	0.02			
SREV	CADMIUM	REC	97	1		%	++	0.005	0.02			
SREV	CADMIUM	REC	97	1		%	++	0.005	0.02			
SREV	CADMIUM	RSD	2.795	1		mg/L	++	0.005	0.015			
SREV	CADMIUM	RSD	2.329	1		mg/L	++	0.005	0.015			
SREV	MOLYBDENUM	FOUND	2.004	1		mg/L	++	0.02	0.1			
SREV	MOLYBDENUM	REC	100	1		%	++	0.02	0.1			
SREV	MOLYBDENUM	RSD	2.531	1		mg/L	++	0.02	0.1			
SREV	POTASSIUM	FOUND	19.73	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	99	1		%	++	0.2	1			
SREV	POTASSIUM	RSD	1.461	1		mg/L	++	0.2	1			
SREV	SELENIUM	FOUND	4.021	1		mg/L	++	0.05	0.3			
SREV	SELENIUM	REC	101	1		%	++	0.05	0.3			
SREV	SELENIUM	RSD	2.517	1		mg/L	++	0.05	0.25			
SREV	YTTRIUM	REC	99.8	1		%	++	0.001	0.005			

WG416030ICB

Tag:

Measured: 1/11/2017 4:12:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.005	0.02			
SREV	MOLYBDENUM	FOUND		1	U	mg/L	++	0.02	0.1			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.05	0.3			
SREV	YTTRIUM	REC	100.86	1		%	++	0.001	0.005			

WG416030PQV

Tag:

Measured: 1/11/2017 4:15:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	0.055	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	110	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	97.15	1		%	++	0.001	0.005			

WG416030ICSAB

Tag:

Measured: 1/11/2017 4:18:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	0.478	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	96	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	100.65	1		%	++	0.001	0.005			

WG415942PBS

Tag: Measured: 1/11/2017 4:25:13 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND		5	U	mg/Kg	++	0.05	0.3			
SREV	YTTRIUM	REC	102.32	5		%	++	0.001	0.005			

L34445-01

Tag: 1 Measured: 1/11/2017 4:28:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW		5	U	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34445-01DUP

Tag: Measured: 1/11/2017 4:31:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	0.057	5	B	mg/Kg	++	0.05	0.3			
SREV	BORON	RPD	200	5	B	%	ALRT	0.05	0.3		RA	
SREV	YTTRIUM	REC	99.71	5		%	++	0.001	0.005			

L34445-02

Tag: 1 Measured: 1/11/2017 4:34:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.25	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	99.8	5		%	++	0.001	0.005			

L34445-03

Tag: 1 Measured: 1/11/2017 4:37:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.08	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	101	5		%	++	0.001	0.005			

L34445-04

Tag: 1 Measured: 1/11/2017 4:41:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.10	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	101	5		%	++	0.001	0.005			

L34674-01

Tag: 1 Measured: 1/11/2017 4:44:22 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.18	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34674-01AS

Tag: Measured: 1/11/2017 4:47:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	2.605	5		mg/Kg	++	0.05	0.3			
SREV	BORON	REC	97	5		%	++	0.05	0.3			
SREV	YTTRIUM	REC	99.23	5		%	++	0.001	0.005			

L34674-01ASD

Tag: Measured: 1/11/2017 4:50:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	2.658	5		mg/Kg	++	0.05	0.3			
SREV	BORON	REC	99	5		%	++	0.05	0.3			
SREV	BORON	RPD	2	5		%	++	0.05	0.3			
SREV	YTTRIUM	REC	98.3	5		%	++	0.001	0.005			

L34674-02 Tag: 1 Measured: 1/11/2017 4:53:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.20	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	99.4	5		%	++	0.001	0.005			

WG416030CCV1 Tag: Measured: 1/11/2017 4:57:02 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	1.017	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	102	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	99.22	1		%	++	0.001	0.005			

WG416030CCB1 Tag: Measured: 1/11/2017 5:00:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	YTTRIUM	REC	102.65	1		%	++	0.001	0.005			

L34674-03 Tag: 1 Measured: 1/11/2017 5:03:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.07	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	99.5	5		%	++	0.001	0.005			

L34674-04 Tag: 1 Measured: 1/11/2017 5:06:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW		5	U	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34674-04SDL Tag: 1 Measured: 1/11/2017 5:09:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	D		5	U	%	++	0.05	0.3			
SREV	BORON	FOUND		5	U	mg/Kg	++	0.05	0.3			
SREV	BORON	REG	0	5	U	mg/Kg	++	0.05	0.3			
SREV	YTTRIUM	REC	99.57	5		%	++	0.001	0.005			

L34674-05 Tag: 1 Measured: 1/11/2017 5:12:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.07	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	103	5		%	++	0.001	0.005			

L34674-06 Tag: 1 Measured: 1/11/2017 5:16:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.06	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	100	5		%	++	0.001	0.005			

L34674-07 Tag: 1 Measured: 1/11/2017 5:19:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.11	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34674-08 Tag: 1 Measured: 1/11/2017 5:22:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW		5	U	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	100	5		%	++	0.001	0.005			

L34674-09 Tag: 1 Measured: 1/11/2017 5:25:43 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.13	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	103	5		%	++	0.001	0.005			

L34674-10 Tag: 1 Measured: 1/11/2017 5:28:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.19	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

L34674-14 Tag: 1 Measured: 1/11/2017 5:32:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	B-HW	.09	5	B	mg/Kg	++	0.05	0.3		RA	
NEED	YTTRIUM	REC	102	5		%	++	0.001	0.005			

WG416030CCV2 Tag: Measured: 1/11/2017 5:35:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND	0.974	1		mg/L	++	0.01	0.05			
SREV	BORON	REC	97	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	101.26	1		%	++	0.001	0.005			

WG416030CCB2 Tag: Measured: 1/11/2017 5:38:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	YTTRIUM	REC	99.59	1		%	++	0.001	0.005			

WG416030CCV3 Tag: Measured: 1/11/2017 5:41:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	BORON	FOUND	1.01	1		mg/L	++	0.01	0.05			
FAIL	BORON	REC	101	1		%	++	0.01	0.05			
SREV	YTTRIUM	REC	99.61	1		%	++	0.001	0.005			

WG416030CCB3 Tag: Measured: 1/11/2017 5:44:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	BORON	FOUND		1	U	mg/L	++	0.01	0.05			
SREV	YTTRIUM	REC	102.36	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/11/2017 15:56:49 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0004**	**-.0001**	**-.0000**	**.0001**	**.0017**	**-.0065**	**.0001**	**-.0069**	**-.0002**
Stddev	.0000	.0001	.0000	.0001	.0004	.0001	.0001	.0000	.0000
%RSD	6.351	100.4	56.56	71.93	24.57	.9713	48.80	.0943	7.205
#1	-.0003	-.0000	-.0000	.0001	.0014	-.0066	.0001	-.0069	-.0002
#2	-.0004	-.0001	-.0000	.0000	.0020	-.0065	.0001	-.0069	-.0002

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0001**	**.0000**	**-.0001**	**.0002**	**.0001**	**.0000**	**.0001**	**.0002**	**.0054**
Stddev	.0001	.0000	.0000	.0000	.0001	.0001	.0000	.0001	.0000
%RSD	110.6	44.22	59.69	5.610	188.5	278.8	1.127	29.56	.2140
#1	.0001	.0000	-.0000	.0002	-.0000	-.0000	.0001	.0001	.0054
#2	.0000	.0000	-.0001	.0002	.0001	.0001	.0001	.0002	.0054

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0023**	**-.0000**	**.0001**	**.0001**	**.0093**	**.0000**	**-.0002**	**.0000**	**.0001**
Stddev	.0002	.0001	.0000	.0000	.0002	.0000	.0000	.0000	.0000
%RSD	7.432	213.6	48.36	14.22	1.999	39.82	5.283	36.60	21.01
#1	-.0022	-.0001	.0001	.0000	.0094	.0000	-.0002	.0000	.0001
#2	-.0024	.0000	.0000	.0001	.0092	.0000	-.0002	.0001	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0005**	**-.0000**	**.0005**	**.0005**	**.0000**	**.0007**	**-.0000**	**-.0000**
Stddev	.0001	.0000	.0000	.0000	.0000	.0000	.0001	.0000	.0000
%RSD	287.2	6.769	91.08	.4702	.4702	7.680	8.895	109.5	18.48
#1	-.0000	.0005	-.0000	.0005	.0005	.0000	.0007	-.0000	-.0000
#2	.0001	.0005	-.0000	.0005	.0005	.0000	.0006	-.0001	-.0001

Sample Name: Blank Acquired: 1/11/2017 15:56:49 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**-.0004**	**-.0000**	**.0000**
Stddev	.0000	.0000	.0000
%RSD	1.135	71.01	36.79
#1	-.0004	-.0000	.0000
#2	-.0004	-.0001	.0000

Int. Std.	Y_3710
Units	Cts/S
Avg	**13313.**
Stddev	97.
%RSD	.72717
#1	13382.
#2	13245.

Sample Name: L34445-01DUP Acquired: 1/11/2017 16:31:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0027**	**.2143**	**-.0327**	**.0113**	**.2754**	**.0013**	**-.0150**	**337.5**	**.0114**
Stddev	.0041	.0048	.0011	.0024	.0021	.0000	.0005	.8	.0007
%RSD	148.6	2.226	3.479	21.64	.7488	1.487	3.330	.2426	6.314
#1	.0001	.2177	-.0319	.0096	.2740	.0013	-.0154	338.0	.0109
#2	-.0056	.2109	-.0335	.0130	.2769	.0013	-.0147	336.9	.0119

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0109**	**-.0005**	**.0026**	**-.0048**	**.0043**	**.1042**	**.1040**	**-.0210**	**6.934**
Stddev	.0000	.0007	.0013	.0012	.0023	.0005	.0026	.0040	.092
%RSD	.3362	144.1	51.08	25.48	52.14	.4321	2.518	18.97	1.327
#1	.0108	-.0010	.0016	-.0057	.0059	.1045	.1058	-.0182	6.869
#2	.0109	.0000	.0035	-.0039	.0027	.1039	.1021	-.0238	6.999

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0115**	**40.35**	**.0170**	**.0010**	**2.166**	**.0095**	**.2476**	**-.0007**	**.4571**
Stddev	.0008	.20	.0006	.0025	.023	.0048	.0129	.0054	.0053
%RSD	6.624	.5035	3.288	237.3	1.061	51.01	5.194	726.3	1.151
#1	.0109	40.49	.0166	-.0007	2.150	.0061	.2385	.0031	.4608
#2	.0120	40.21	.0174	.0028	2.182	.0129	.2567	-.0045	.4534

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0049**	**-.0004**	**.0108**	**3.929**	**8.408**	**-.0107**	**.6270**	**.0073**	**-.0105**
Stddev	.0135	.0002	.0311	.004	.008	.0074	.0032	.0003	.0497
%RSD	274.6	36.94	288.7	.0922	.0922	69.83	.5167	4.221	474.4
#1	.0046	-.0006	-.0112	3.931	8.413	-.0159	.6247	.0075	-.0457
#2	-.0144	-.0003	.0328	3.926	8.402	-.0054	.6293	.0071	.0247

Sample Name: L34445-01DUP Acquired: 1/11/2017 16:31:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0015	.0178	.0212
Stddev	.0000	.0000	.0000
%RSD	1.044	.2122	.1914
#1	.0015	.0178	.0212
#2	.0015	.0178	.0213

Int. Std.	Y_3710
Units	Cts/S
Avg	13275.
Stddev	178.
%RSD	1.3427
#1	13401.
#2	13149.

Sample Name: CCB Acquired: 1/11/2017 17:00:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0024**	**-.0101**	**-.0274**	**.0006**	**.0021**	**.0021**	**-.0073**	**.0632**	**-.0014**
Stddev	.0073	.0065	.0061	.0037	.0002	.0003	.0071	.0261	.0001
%RSD	304.1	64.06	22.23	613.9	10.10	15.77	97.48	41.33	8.509
#1	-.0028	-.0055	-.0231	.0032	.0022	.0023	-.0023	.0817	-.0015
#2	.0075	-.0146	-.0317	-.0020	.0019	.0018	-.0123	.0447	-.0013
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0021**	**-.0013**	**.0017**	**-.0015**	**.0015**	**-.0104**	**-.0029**	**-.0260**	**.0145**
Stddev	.0001	.0030	.0006	.0002	.0000	.0002	.0019	.0146	.0272
%RSD	5.522	240.5	31.85	15.77	2.793	2.060	64.46	55.99	188.0
#1	-.0020	-.0034	.0014	-.0017	.0015	-.0103	-.0016	-.0363	-.0048
#2	-.0022	.0009	.0021	-.0014	.0014	-.0106	-.0042	-.0157	.0338
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009**	**-.0072**	**-.0071**	**.0041**	**.0392**	**.0008**	**.0518**	**-.0085**	**.0885**
Stddev	.0004	.0204	.0001	.0003	.0070	.0005	.0695	.0020	.0258
%RSD	52.71	282.3	.7116	8.528	17.81	62.84	134.3	23.11	29.20
#1	.0012	.0072	-.0070	.0043	.0441	.0005	.0026	-.0099	.1068
#2	.0005	-.0217	-.0071	.0038	.0342	.0012	.1009	-.0071	.0702
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 17:00:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019	.0001	.0323	.0022	.0046	-.0170	.0017	-.0004	-.0033
Stddev	.0302	.0004	.0123	.0007	.0014	.0014	.0003	.0004	.0160
%RSD	1582.	576.3	37.99	30.11	30.11	8.430	19.43	107.8	486.7
#1	-.0195	.0003	.0236	.0026	.0056	-.0160	.0019	-.0001	.0080
#2	.0233	-.0002	.0409	.0017	.0036	-.0180	.0014	-.0007	-.0146
Check ?	Chk Pass	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	.0025	.0008	.0020
Stddev	.0017	.0014	.0000
%RSD	66.42	179.5	.8410
#1	.0013	-.0002	.0020
#2	.0037	.0018	.0020
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	13666.
Stddev	240.
%RSD	1.7574
#1	13836.
#2	13496.

Sample Name: CalStd-1 Acquired: 1/11/2017 16:00:01 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0227**	**.1332**	**.0039**	**.0293**	**3.313**	**1.555**	**.0060**	**.0402**	**.0581**
Stddev	.0001	.0005	.0001	.0004	.007	.010	.0000	.0003	.0005
%RSD	.5284	.3876	1.357	1.327	.2130	.6565	.3204	.7052	.7794
#1	.0228	.1335	.0038	.0290	3.318	1.563	.0060	.0404	.0578
#2	.0226	.1328	.0039	.0296	3.308	1.548	.0060	.0400	.0584

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0490**	**.0174**	**.0614**	**.0834**	**.0476**	**.0402**	**.1022**	**.0036**	**.1287**
Stddev	.0003	.0001	.0005	.0006	.0003	.0004	.0002	.0001	.0009
%RSD	.6549	.7173	.8806	.6752	.5431	1.002	.2291	3.729	.6641
#1	.0488	.0173	.0610	.0838	.0478	.0405	.1024	.0036	.1293
#2	.0492	.0175	.0618	.0830	.0474	.0399	.1020	.0037	.1281

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.7752**	**.0201**	**.2496**	**.0131**	**.1149**	**.0029**	**.0086**	**.0038**	**.0022**
Stddev	.0005	.0002	.0002	.0001	.0000	.0000	.0000	.0000	.0001
%RSD	.0613	1.064	.0683	.7184	.0323	.7667	.3622	.0315	2.844
#1	.7749	.0203	.2498	.0130	.1149	.0029	.0086	.0038	.0022
#2	.7755	.0200	.2495	.0131	.1149	.0029	.0086	.0038	.0023

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.7613**	**.0039**	**.0365**	**.0365**	**.0066**	**2.424**	**.0854**	**.0092**	**.0192**
Stddev	.0032	.0000	.0004	.0004	.0000	.007	.0006	.0000	.0001
%RSD	.4224	1.210	1.231	1.231	.4392	.2867	.6877	.1647	.4280
#1	.7636	.0038	.0368	.0368	.0066	2.429	.0858	.0092	.0192
#2	.7590	.0039	.0362	.0362	.0066	2.419	.0850	.0093	.0191

Sample Name: CalStd-1 Acquired: 1/11/2017 16:00:01 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0201	.0294
Stddev	.0000	.0002
%RSD	.1216	.7046
#1	.0201	.0292
#2	.0201	.0295

Int. Std.	Y_3710
Units	Cts/S
Avg	13159.
Stddev	87.
%RSD	.66074
#1	13221.
#2	13098.

Sample Name: CalStd-2 Acquired: 1/11/2017 16:03:07 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0453	.2649	.0076	.0585	6.655	3.130	.0118	.0865	.1161
Stddev	.0008	.0044	.0001	.0003	.076	.044	.0000	.0017	.0002
%RSD	1.734	1.647	.7779	.4435	1.136	1.418	.1564	2.020	.2038
#1	.0459	.2680	.0077	.0587	6.708	3.162	.0118	.0877	.1162
#2	.0448	.2618	.0076	.0584	6.601	3.099	.0118	.0852	.1159

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0975	.0348	.1229	.1657	.0942	.0795	.2031	.0071	.2475
Stddev	.0004	.0001	.0001	.0027	.0015	.0016	.0026	.0003	.0025
%RSD	.3796	.2305	.1188	1.601	1.570	2.028	1.288	3.885	1.025
#1	.0977	.0348	.1230	.1675	.0953	.0806	.2050	.0073	.2493
#2	.0972	.0347	.1228	.1638	.0932	.0784	.2013	.0069	.2457

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.557	.0400	.4850	.0261	.2183	.0060	.0169	.0075	.0045
Stddev	.022	.0003	.0060	.0001	.0035	.0000	.0000	.0001	.0000
%RSD	1.394	.7874	1.245	.5312	1.592	.0892	.2167	1.299	.0789
#1	1.573	.0402	.4892	.0262	.2207	.0060	.0169	.0076	.0045
#2	1.542	.0397	.4807	.0260	.2158	.0060	.0169	.0075	.0045

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.521	.0079	.0721	.0721	.0131	4.861	.1698	.0186	.0389
Stddev	.021	.0000	.0011	.0011	.0000	.059	.0019	.0001	.0005
%RSD	1.356	.0937	1.540	1.540	.1368	1.204	1.122	.3649	1.377
#1	1.536	.0079	.0729	.0729	.0131	4.902	.1712	.0186	.0392
#2	1.507	.0079	.0713	.0713	.0131	4.819	.1685	.0185	.0385

Sample Name: CalStd-2 Acquired: 1/11/2017 16:03:07 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0401	.0587
Stddev	.0001	.0002
%RSD	.3372	.3162
#1	.0402	.0589
#2	.0400	.0586

Int. Std.	Y_3710
Units	Cts/S
Avg	13394.
Stddev	37.
%RSD	.27401
#1	13368.
#2	13420.

Sample Name: CalStd-3 Acquired: 1/11/2017 16:06:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.830	2.438	.3978	10.65	.0252	.0758
Stddev	.003	.008	.0007	.06	.0003	.0009
%RSD	.1860	.3271	.1724	.5698	1.218	1.234
#1	1.828	2.432	.3973	10.61	.0250	.0751
#2	1.833	2.444	.3983	10.69	.0254	.0765

Int. Std.	Y_3710
Units	Cts/S
Avg	13289.
Stddev	156.
%RSD	1.1755
#1	13399.
#2	13179.

Sample Name: ICV Acquired: 1/11/2017 16:09:22 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9837	2.010	3.969	1.985	1.962	2.014	1.966	99.32	1.943
Stddev	.0196	.025	.106	.046	.029	.029	.047	1.36	.054
%RSD	1.992	1.263	2.657	2.312	1.498	1.417	2.365	1.371	2.795
#1	.9699	1.992	3.894	1.952	1.941	1.994	1.934	98.36	1.905
#2	.9976	2.028	4.044	2.017	1.983	2.034	1.999	100.3	1.981
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.947	1.918	1.943	1.942	1.987	1.951	1.968	1.985	19.73
Stddev	.045	.054	.042	.033	.030	.036	.034	.046	.29
%RSD	2.329	2.794	2.178	1.714	1.515	1.865	1.723	2.336	1.461
#1	1.915	1.881	1.913	1.918	1.966	1.925	1.945	1.952	19.52
#2	1.980	1.956	1.973	1.966	2.009	1.977	1.992	2.017	19.93
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.958	99.99	1.940	2.004	100.1	2.029	F 5.332	3.806	50.07
Stddev	.025	1.32	.020	.051	1.6	.048	.127	.081	1.36
%RSD	1.288	1.323	1.033	2.531	1.613	2.370	2.381	2.128	2.722
#1	1.941	99.05	1.926	1.968	98.96	1.995	5.242	3.749	49.11
#2	1.976	100.9	1.954	2.040	101.2	2.063	5.421	3.864	51.04
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass
Value							5.005		
Range							5.440%		

Sample Name: ICV Acquired: 1/11/2017 16:09:22 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.152**	**1.973**	**4.021**	**19.26**	F **41.21**	**1.993**	**1.976**	**1.987**	**3.847**
Stddev	.135	.029	.101	.24	.51	.031	.032	.028	.084
%RSD	3.244	1.466	2.517	1.234	1.234	1.557	1.609	1.390	2.177
#1	4.057	1.953	3.949	19.09	40.85	1.971	1.953	1.968	3.788
#2	4.248	1.994	4.092	19.42	41.57	2.015	1.998	2.007	3.907
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					20.00				
Range					5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**2.003**	**1.925**	**1.944**
Stddev	.036	.045	.043
%RSD	1.787	2.335	2.188
#1	1.978	1.893	1.914
#2	2.029	1.956	1.974
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**13286.**
Stddev	320.
%RSD	2.4074
#1	13512.
#2	13060.

Sample Name: ICB Acquired: 1/11/2017 16:12:26 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0024**	**-.0140**	**-.0243**	**.0033**	**.0028**	**.0025**	**-.0009**	**.0247**	**.0003**
Stddev	.0002	.0017	.0161	.0010	.0006	.0007	.0045	.0472	.0001
%RSD	7.344	11.93	66.16	31.50	20.10	29.34	477.5	190.8	31.76
#1	.0026	-.0151	-.0129	.0040	.0032	.0030	.0022	.0581	.0003
#2	.0023	-.0128	-.0356	.0025	.0024	.0020	-.0041	-.0086	.0004
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**.0010**	**.0015**	**-.0061**	**.0045**	**-.0047**	**-.0022**	**-.0058**	**.0089**
Stddev	.0004	.0001	.0007	.0000	.0025	.0021	.0004	.0178	.0182
%RSD	86.03	11.34	46.01	.3343	56.33	43.88	16.19	307.2	204.7
#1	-.0008	.0011	.0020	-.0061	.0063	-.0033	-.0025	.0068	-.0040
#2	-.0002	.0009	.0010	-.0061	.0027	-.0062	-.0020	-.0184	.0217
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0021**	**.0093**	**-.0085**	**.0044**	**.0633**	**.0002**	**.0492**	**-.0120**	**.0971**
Stddev	.0006	.0426	.0004	.0040	.0275	.0040	.0028	.0144	.0279
%RSD	30.83	458.5	5.137	91.12	43.36	1660.	5.749	120.2	28.76
#1	.0025	.0394	-.0081	.0072	.0828	-.0026	.0472	-.0221	.1169
#2	.0016	-.0208	-.0088	.0016	.0439	.0031	.0512	-.0018	.0774
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/11/2017 16:12:26 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0146	.0008	.0099	.0123	.0263	.0001	.0022	.0005	.0355
Stddev	.0096	.0005	.0062	.0045	.0097	.0033	.0006	.0020	.0067
%RSD	65.98	61.51	62.27	37.01	37.01	4334.	26.60	380.2	18.88
#1	-.0078	.0012	.0055	.0155	.0332	-.0023	.0026	.0020	.0402
#2	-.0214	.0005	.0143	.0091	.0194	.0024	.0018	-.0009	.0307
Check ?	Chk Pass	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	.0030	-.0008	.0021
Stddev	.0016	.0021	.0005
%RSD	54.88	260.1	25.38
#1	.0018	.0007	.0017
#2	.0041	-.0023	.0024
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	13428.
Stddev	275.
%RSD	2.0465
#1	13623.
#2	13234.

Sample Name: PQV Acquired: 1/11/2017 16:15:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0247	.1456	.1649	.0548	.0175	.0534	.2065	.5051	.0145
Stddev	.0031	.0042	.0060	.0023	.0001	.0002	.0174	.0031	.0007
%RSD	12.33	2.852	3.658	4.137	.2902	.4057	8.419	.6128	4.984
#1	.0269	.1426	.1606	.0532	.0175	.0536	.1942	.5073	.0150
#2	.0226	.1485	.1692	.0564	.0174	.0533	.2188	.5029	.0140
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0133	.0517	.0553	.0514	.0575	.0441	.0492	.5255	1.056
Stddev	.0000	.0020	.0001	.0003	.0006	.0058	.0022	.0112	.026
%RSD	.3258	3.847	.2516	.5599	.9601	13.25	4.531	2.124	2.458
#1	.0132	.0503	.0552	.0512	.0571	.0399	.0507	.5334	1.074
#2	.0133	.0531	.0554	.0516	.0579	.0482	.0476	.5176	1.038
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0428	1.054	F .0170	.1072	1.090	.0428	.5682	.1532	1.349
Stddev	.0010	.016	.0005	.0018	.013	.0044	.0234	.0097	.025
%RSD	2.253	1.466	2.974	1.658	1.155	10.34	4.124	6.302	1.849
#1	.0435	1.065	.0173	.1085	1.099	.0460	.5847	.1600	1.331
#2	.0421	1.043	.0166	.1060	1.081	.0397	.5516	.1464	1.367
Check ?	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value			.0250						
Range			-30.55%						

Sample Name: PQV Acquired: 1/11/2017 16:15:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1499	.5144	.2760	.5270	F 1.128	.2001	.0272	.0259	.5144
Stddev	.0170	.0034	.0153	.0200	.043	.0010	.0001	.0003	.0041
%RSD	11.35	.6611	5.544	3.791	3.791	.4815	.3891	1.089	.7934
#1	.1620	.5168	.2652	.5411	1.158	.2008	.0273	.0261	.5173
#2	.1379	.5120	.2869	.5129	1.098	.1994	.0272	.0257	.5116
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0247	.0556	.0557
Stddev	.0001	.0006	.0001
%RSD	.2908	1.045	.1825
#1	.0246	.0560	.0558
#2	.0247	.0552	.0556
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	12933.
Stddev	59.
%RSD	.45355
#1	12975.
#2	12892.

Sample Name: ICSAB Acquired: 1/11/2017 16:18:51 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4909	245.1	4.815	.4783	.2397	.2367	.4724	235.1	.4507
Stddev	.0009	.1	.005	.0116	.0004	.0000	.0006	.2	.0078
%RSD	.1898	.0373	.1120	2.424	.1662	.0188	.1285	.0924	1.729
#1	.4903	245.2	4.819	.4701	.2394	.2366	.4720	234.9	.4452
#2	.4916	245.1	4.811	.4865	.2400	.2367	.4729	235.2	.4562
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4533	.2259	.2372	.2262	.2367	93.13	93.23	.4689	24.49
Stddev	.0079	.0017	.0025	.0020	.0067	.08	.04	.0459	.01
%RSD	1.733	.7406	1.051	.8843	2.817	.0878	.0430	9.794	.0596
#1	.4478	.2247	.2389	.2248	.2319	93.07	93.20	.4365	24.50
#2	.4589	.2271	.2354	.2276	.2414	93.19	93.26	.5014	24.48
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5001	244.8	.2243	.4766	25.05	.4550	4.824	.4206	2.465
Stddev	.0001	.3	.0008	.0061	.01	.0062	.053	.0148	.013
%RSD	.0261	.1278	.3521	1.282	.0515	1.356	1.095	3.527	.5096
#1	.5002	245.0	.2237	.4723	25.06	.4506	4.787	.4101	2.456
#2	.5001	244.6	.2248	.4809	25.04	.4593	4.861	.4311	2.474
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/11/2017 16:18:51 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4699	.4875	4.845	2.407	F 5.152	2.336	.4805	.4792	2.267
Stddev	.0210	.0003	.073	.010	.021	.029	.0010	.0025	.040
%RSD	4.476	.0574	1.515	.4144	.4144	1.259	.2106	.5205	1.752
#1	.4550	.4873	4.793	2.400	5.137	2.315	.4798	.4775	2.239
#2	.4847	.4877	4.897	2.414	5.167	2.356	.4812	.4810	2.295
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2360	.4535	.4796
Stddev	.0027	.0098	.0060
%RSD	1.136	2.155	1.246
#1	.2342	.4466	.4754
#2	.2379	.4604	.4838
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13399.
Stddev	200.
%RSD	1.4896
#1	13540.
#2	13258.

Sample Name: WASH Acquired: 1/11/2017 16:21:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005	.0833	-.0124	-.0017	.0016	.0015	-.0080	.0476	-.0013
Stddev	.0004	.0226	.0068	.0020	.0001	.0002	.0041	.0323	.0000
%RSD	76.82	27.09	54.75	119.2	7.781	14.95	51.52	67.78	.8464
#1	.0007	.0993	-.0076	-.0003	.0015	.0016	-.0051	.0704	-.0013
#2	.0002	.0674	-.0173	-.0031	.0017	.0013	-.0109	.0248	-.0012
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0022	-.0010	.0036	-.0032	.0015	.0303	.0368	-.0432	.0165
Stddev	.0002	.0003	.0008	.0000	.0039	.0189	.0122	.0155	.0193
%RSD	8.179	30.21	21.28	1.240	254.7	62.51	33.24	35.98	116.7
#1	-.0023	-.0008	.0041	-.0033	.0043	.0437	.0454	-.0322	.0029
#2	-.0020	-.0012	.0030	-.0032	-.0012	.0169	.0281	-.0542	.0302
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002	.0407	-.0096	.0018	.0065	-.0020	.0182	-.0051	.0565
Stddev	.0000	.0111	.0001	.0007	.0075	.0005	.0003	.0021	.0283
%RSD	20.22	27.17	1.026	41.89	115.7	24.10	1.374	40.49	50.14
#1	.0002	.0329	-.0096	.0023	.0117	-.0017	.0181	-.0037	.0765
#2	.0003	.0485	-.0095	.0013	.0012	-.0024	.0184	-.0066	.0365
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/11/2017 16:21:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0157	-.0003	.0418	-.0038	-.0080	-.0049	.0010	-.0002	-.0098
Stddev	.0380	.0000	.0221	.0020	.0042	.0068	.0001	.0003	.0064
%RSD	242.3	8.366	52.87	52.08	52.08	137.0	12.15	194.1	64.97
#1	.0426	-.0004	.0261	-.0051	-.0110	-.0002	.0011	-.0004	-.0143
#2	-.0112	-.0003	.0574	-.0024	-.0051	-.0097	.0009	.0001	-.0053
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0006	-.0016	.0020
Stddev	.0020	.0009	.0013
%RSD	367.4	54.55	64.32
#1	-.0020	-.0022	.0029
#2	.0009	-.0010	.0011
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13275.
Stddev	224.
%RSD	1.6838
#1	13433.
#2	13117.

Sample Name: WG415942PBS Acquired: 1/11/2017 16:25:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0009	.0327	-.0046	-.0067	.0037	.0014	-.0033	405.0	-.0005
Stddev	.0026	.0103	.0150	.0005	.0000	.0002	.0282	1.3	.0005
%RSD	295.8	31.47	323.3	7.126	.8980	12.33	866.6	.3276	108.5
#1	.0010	.0400	.0060	-.0070	.0037	.0015	.0167	405.9	-.0001
#2	-.0027	.0254	-.0152	-.0063	.0036	.0013	-.0232	404.0	-.0008

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0019	-.0000	.0026	-.0091	-.0009	.0064	.0072	-.0197	.0119
Stddev	.0001	.0023	.0005	.0002	.0022	.0031	.0001	.0238	.0187
%RSD	7.562	5992.	17.17	1.760	253.5	48.32	1.979	121.1	157.3
#1	-.0018	.0016	.0030	-.0090	-.0024	.0085	.0071	-.0028	-.0013
#2	-.0020	-.0017	.0023	-.0092	.0007	.0042	.0073	-.0365	.0252

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0036	.0783	-.0097	.0032	.1440	-.0006	.0731	.0003	.0619
Stddev	.0011	.0242	.0002	.0010	.0023	.0011	.0038	.0181	.0231
%RSD	31.72	30.99	1.923	30.86	1.568	184.1	5.239	6418.	37.41
#1	.0044	.0611	-.0096	.0038	.1424	-.0014	.0758	-.0125	.0455
#2	.0028	.0954	-.0098	.0025	.1456	.0002	.0703	.0131	.0782

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0111	-.0005	.0419	-.0057	-.0123	-.0164	.0642	-.0019	.0066
Stddev	.0121	.0001	.0278	.0019	.0040	.0015	.0002	.0006	.0239
%RSD	108.9	19.15	66.34	32.93	32.93	9.130	.3518	33.26	362.7
#1	-.0026	-.0005	.0615	-.0071	-.0151	-.0153	.0640	-.0023	-.0103
#2	-.0197	-.0006	.0222	-.0044	-.0094	-.0174	.0644	-.0014	.0235

Sample Name: WG415942PBS Acquired: 1/11/2017 16:25:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0035	.0016	.0033
Stddev	.0004	.0015	.0005
%RSD	10.80	92.80	15.47
#1	-.0032	.0027	.0036
#2	-.0037	.0006	.0029

Int. Std.	Y_3710
Units	Cts/S
Avg	13622.
Stddev	217.
%RSD	1.5918
#1	13775.
#2	13468.

Sample Name: L34445-01 Acquired: 1/11/2017 16:28:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	.2318	-.0272	.0032	.2677	.0014	-.0240	334.4	.0116
Stddev	.0002	.0016	.0094	.0062	.0016	.0001	.0167	.1	.0001
%RSD	145.0	.6826	34.58	195.3	.5864	8.117	69.66	.0323	1.155
#1	.0000	.2330	-.0206	.0076	.2665	.0015	-.0122	334.3	.0117
#2	-.0003	.2307	-.0339	-.0012	.2688	.0013	-.0358	334.5	.0115

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0110	-.0014	.0033	-.0047	.0049	.1082	.1171	-.0120	6.504
Stddev	.0007	.0027	.0014	.0058	.0005	.0071	.0009	.0102	.014
%RSD	6.158	190.0	42.37	123.0	11.29	6.525	.7401	84.89	.2133
#1	.0105	.0005	.0023	-.0088	.0045	.1132	.1177	-.0048	6.494
#2	.0114	-.0033	.0042	-.0006	.0053	.1032	.1165	-.0191	6.513

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0111	40.62	.0165	.0018	2.134	.0118	.2003	.0039	.4628
Stddev	.0000	.00	.0006	.0058	.014	.0024	.0157	.0082	.0086
%RSD	.2887	.0015	3.826	332.2	.6528	20.31	7.828	207.8	1.848
#1	.0111	40.62	.0161	-.0024	2.124	.0135	.1892	-.0018	.4567
#2	.0112	40.62	.0170	.0059	2.144	.0101	.2114	.0097	.4688

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010	-.0007	.0315	3.556	7.610	-.0090	.6224	.0084	.0246
Stddev	.0082	.0000	.0321	.017	.037	.0005	.0034	.0010	.0390
%RSD	799.9	3.385	101.8	.4886	.4886	5.079	.5447	12.01	158.8
#1	-.0048	-.0007	.0088	3.569	7.637	-.0087	.6200	.0077	.0522
#2	.0068	-.0007	.0542	3.544	7.584	-.0093	.6248	.0091	-.0030

Sample Name: L34445-01 Acquired: 1/11/2017 16:28:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0001	.0152	.0208
Stddev	.0002	.0006	.0009
%RSD	376.9	4.285	4.350
#1	.0002	.0156	.0215
#2	-.0001	.0147	.0202

Int. Std.	Y_3710
Units	Cts/S
Avg	13521.
Stddev	213.
%RSD	1.5738
#1	13671.
#2	13370.

Sample Name: L34445-02 Acquired: 1/11/2017 16:34:48 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0036	.1631	-.0145	.0498	.1084	.0013	.0023	403.0	-.0011
Stddev	.0024	.0053	.0257	.0044	.0002	.0000	.0124	1.5	.0001
%RSD	65.19	3.244	177.9	8.824	.1541	2.558	540.9	.3632	6.606
#1	-.0020	.1593	-.0327	.0467	.1083	.0013	.0111	404.0	-.0012
#2	-.0053	.1668	.0037	.0529	.1085	.0012	-.0065	401.9	-.0011

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0019	.0015	.0006	-.0054	.0018	.0679	.0697	-.0096	7.036
Stddev	.0016	.0017	.0015	.0006	.0002	.0076	.0018	.0564	.025
%RSD	82.38	112.2	249.8	11.19	10.76	11.22	2.623	586.2	.3585
#1	-.0030	.0027	-.0005	-.0059	.0019	.0733	.0710	-.0495	7.018
#2	-.0008	.0003	.0017	-.0050	.0017	.0626	.0684	.0303	7.054

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0157	8.700	.0004	.0013	1.213	.0004	.1567	-.0101	.3386
Stddev	.0002	.124	.0010	.0042	.000	.0018	.0317	.0032	.0249
%RSD	1.342	1.423	240.5	313.6	.0116	482.5	20.23	31.93	7.346
#1	.0155	8.788	-.0003	.0043	1.213	-.0009	.1342	-.0078	.3210
#2	.0158	8.613	.0011	-.0016	1.212	.0016	.1791	-.0124	.3562

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0103	-.0006	.0404	3.532	7.558	-.0036	.3943	.0036	.0173
Stddev	.0233	.0001	.0199	.019	.041	.0063	.0003	.0011	.0324
%RSD	226.5	22.53	49.31	.5466	.5466	172.7	.0725	29.65	187.0
#1	-.0062	-.0007	.0263	3.545	7.587	.0008	.3945	.0044	-.0056
#2	.0268	-.0005	.0544	3.518	7.529	-.0081	.3941	.0029	.0403

Sample Name: L34445-02 Acquired: 1/11/2017 16:34:48 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0028	-.0010	.0038
Stddev	.0022	.0008	.0011
%RSD	78.27	80.10	28.85
#1	.0043	-.0004	.0045
#2	.0012	-.0015	.0030

Int. Std.	Y_3710
Units	Cts/S
Avg	13284.
Stddev	301.
%RSD	2.2672
#1	13497.
#2	13071.

Sample Name: L34445-03 Acquired: 1/11/2017 16:37:59 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0013**	**.2293**	**-.0145**	**.0167**	**.2602**	**.0015**	**-.0122**	**348.5**	**.0013**
Stddev	.0029	.0072	.0007	.0004	.0020	.0000	.0104	1.6	.0010
%RSD	219.5	3.147	4.792	2.254	.7825	1.670	84.91	.4497	74.25
#1	.0033	.2344	-.0140	.0164	.2588	.0015	-.0196	347.4	.0006
#2	-.0007	.2242	-.0150	.0170	.2616	.0014	-.0049	349.6	.0020

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001**	**-.0001**	**.0023**	**-.0067**	**.0017**	**.1070**	**.1171**	**-.0073**	**7.666**
Stddev	.0011	.0023	.0028	.0004	.0020	.0007	.0008	.0111	.046
%RSD	842.4	1597.	120.2	5.251	119.0	.6969	.7168	152.7	.6028
#1	-.0007	.0015	.0004	-.0069	.0031	.1075	.1165	.0006	7.634
#2	.0009	-.0018	.0043	-.0064	.0003	.1065	.1177	-.0151	7.699

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0164**	**32.98**	**.0101**	**.0038**	**3.205**	**.0044**	**.1402**	**.0167**	**.4944**
Stddev	.0004	.03	.0004	.0010	.025	.0008	.0400	.0077	.0295
%RSD	2.140	.0839	4.038	25.58	.7938	17.70	28.51	46.02	5.970
#1	.0162	32.97	.0103	.0045	3.187	.0039	.1684	.0221	.4736
#2	.0167	33.00	.0098	.0031	3.223	.0050	.1119	.0112	.5153

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0139**	**-.0005**	**.0475**	**3.870**	**8.283**	**-.0127**	**.6702**	**.0095**	**.0152**
Stddev	.0062	.0001	.0088	.015	.033	.0065	.0059	.0008	.0047
%RSD	44.78	24.24	18.50	.3958	.3958	51.32	.8803	8.227	30.97
#1	-.0183	-.0006	.0413	3.881	8.306	-.0174	.6660	.0101	.0119
#2	-.0095	-.0004	.0538	3.860	8.259	-.0081	.6743	.0090	.0185

Sample Name: L34445-03 Acquired: 1/11/2017 16:37:59 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0019	.0041	.0071
Stddev	.0044	.0006	.0014
%RSD	239.7	14.41	19.28
#1	.0013	.0037	.0081
#2	-.0050	.0045	.0061

Int. Std.	Y_3710
Units	Cts/S
Avg	13477.
Stddev	277.
%RSD	2.0567
#1	13673.
#2	13281.

Sample Name: L34445-04 Acquired: 1/11/2017 16:41:11 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0020	.2340	-.0014	.0201	.1949	.0013	-.0035	318.1	.0034
Stddev	.0050	.0013	.0155	.0011	.0010	.0000	.0116	2.5	.0001
%RSD	248.7	.5606	1076.	5.482	.5062	2.001	332.6	.7949	4.071
#1	.0056	.2330	-.0124	.0193	.1956	.0013	-.0117	319.8	.0033
#2	-.0015	.2349	.0095	.0208	.1942	.0013	.0047	316.3	.0035

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0043	-.0025	.0051	-.0024	.0034	.1080	.1097	-.0284	9.516
Stddev	.0012	.0001	.0009	.0004	.0003	.0036	.0025	.0196	.007
%RSD	27.15	5.071	17.68	15.60	9.278	3.294	2.286	68.97	.0730
#1	.0051	-.0026	.0045	-.0021	.0036	.1055	.1115	-.0145	9.520
#2	.0035	-.0024	.0058	-.0026	.0032	.1106	.1080	-.0422	9.511

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0177	51.14	.0188	-.0007	1.557	.0016	.2965	-.0016	.2579
Stddev	.0003	.51	.0003	.0010	.002	.0048	.0025	.0039	.0102
%RSD	1.733	.9904	1.541	134.1	.1032	290.3	.8587	238.6	3.966
#1	.0179	51.50	.0186	-.0014	1.556	-.0017	.2947	.0011	.2507
#2	.0175	50.78	.0190	-.0000	1.558	.0050	.2983	-.0044	.2652

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0028	-.0008	.0367	4.750	10.17	-.0149	.5769	.0080	.0265
Stddev	.0232	.0000	.0096	.018	.04	.0141	.0017	.0008	.0078
%RSD	832.2	4.478	26.20	.3820	.3820	94.35	.2974	9.500	29.52
#1	-.0192	-.0008	.0434	4.763	10.19	-.0050	.5782	.0074	.0320
#2	.0136	-.0008	.0299	4.737	10.14	-.0249	.5757	.0085	.0210

Sample Name: L34445-04 Acquired: 1/11/2017 16:41:11 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0016	.0072	.0108
Stddev	.0028	.0032	.0012
%RSD	175.4	44.36	10.85
#1	-.0004	.0094	.0100
#2	.0036	.0049	.0117

Int. Std.	Y_3710
Units	Cts/S
Avg	13406.
Stddev	263.
%RSD	1.9636
#1	13592.
#2	13220.

Sample Name: L34674-01 Acquired: 1/11/2017 16:44:22 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0022	.3118	-.0040	.0350	.0562	.0014	-.0221	362.2	-.0002
Stddev	.0009	.0117	.0033	.0015	.0001	.0001	.0022	2.3	.0000
%RSD	43.54	3.765	83.59	4.361	.1714	3.808	9.823	.6347	28.01
#1	-.0015	.3201	-.0016	.0339	.0563	.0014	-.0236	363.8	-.0002
#2	-.0028	.3035	-.0063	.0361	.0562	.0014	-.0206	360.6	-.0001

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0015	-.0017	.0007	-.0025	.0078	.1498	.1562	-.0196	11.43
Stddev	.0001	.0004	.0031	.0044	.0040	.0084	.0036	.0054	.04
%RSD	3.870	22.67	474.0	178.4	51.28	5.616	2.311	27.60	.3303
#1	-.0015	-.0014	-.0016	-.0055	.0050	.1558	.1587	-.0234	11.41
#2	-.0016	-.0019	.0029	.0006	.0106	.1439	.1536	-.0158	11.46

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0165	24.29	.0286	-.0009	1.983	.0007	.1842	-.0226	.6367
Stddev	.0005	.21	.0003	.0013	.008	.0035	.0356	.0254	.0031
%RSD	3.320	.8573	1.144	150.1	.4186	501.0	19.35	112.3	.4893
#1	.0169	24.44	.0288	-.0019	1.977	.0032	.1590	-.0405	.6389
#2	.0162	24.14	.0283	.0001	1.988	-.0018	.2094	-.0047	.6345

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045	-.0007	.0317	3.655	7.822	-.0085	.6208	.0107	.0045
Stddev	.0030	.0001	.0134	.030	.063	.0093	.0004	.0004	.0047
%RSD	66.17	19.63	42.31	.8094	.8094	109.5	.0619	3.562	103.4
#1	.0066	-.0008	.0412	3.676	7.867	-.0150	.6205	.0104	.0078
#2	.0024	-.0006	.0222	3.634	7.777	-.0019	.6210	.0110	.0012

Sample Name: L34674-01 Acquired: 1/11/2017 16:44:22 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0020	.0013	.0058
Stddev	.0018	.0020	.0018
%RSD	92.12	156.2	30.45
#1	-.0033	.0027	.0045
#2	-.0007	-.0001	.0070

Int. Std.	Y_3710
Units	Cts/S
Avg	13617.
Stddev	200.
%RSD	1.4678
#1	13758.
#2	13476.

Sample Name: L34674-01AS Acquired: 1/11/2017 16:47:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4461	1.377	.9722	.5210	.5280	.4664	.9875	409.5	.4586
Stddev	.0037	.011	.0007	.0167	.0026	.0002	.0105	2.2	.0024
%RSD	.8193	.7727	.0682	3.200	.4915	.0494	1.066	.5493	.5279
#1	.4487	1.384	.9717	.5092	.5262	.4665	.9801	411.1	.4569
#2	.4435	1.369	.9727	.5328	.5299	.4662	.9950	407.9	.4603

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4592	.4628	.4800	.4739	.4869	1.155	1.171	.9647	106.1
Stddev	.0062	.0091	.0061	.0001	.0007	.009	.013	.0204	.3
%RSD	1.345	1.968	1.274	.0112	.1532	.7723	1.097	2.118	.3174
#1	.4548	.4564	.4757	.4739	.4874	1.161	1.180	.9503	105.9
#2	.4636	.4692	.4843	.4739	.4864	1.148	1.162	.9792	106.3

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9810	67.62	.5581	.4694	99.23	.4687	1.155	.9341	5.409
Stddev	.0049	.40	.0008	.0052	.24	.0036	.028	.0182	.101
%RSD	.4990	.5928	.1373	1.107	.2404	.7779	2.447	1.945	1.873
#1	.9775	67.90	.5587	.4658	99.06	.4662	1.135	.9212	5.337
#2	.9845	67.33	.5576	.4731	99.39	.4713	1.175	.9469	5.481

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.000	.9365	.9920	13.72	29.36	.9450	1.064	.9757	1.862
Stddev	.020	.0000	.0150	.06	.12	.0089	.002	.0031	.039
%RSD	1.008	.0001	1.513	.4079	.4079	.9471	.1868	.3132	2.072
#1	1.985	.9365	.9814	13.76	29.45	.9387	1.062	.9735	1.835
#2	2.014	.9365	1.003	13.68	29.28	.9513	1.065	.9779	1.889

Sample Name: L34674-01AS Acquired: 1/11/2017 16:47:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4749	.4603	.4871
Stddev	.0009	.0029	.0066
%RSD	.1953	.6226	1.346
#1	.4742	.4583	.4825
#2	.4755	.4624	.4917

Int. Std.	Y_3710
Units	Cts/S
Avg	13211.
Stddev	218.
%RSD	1.6526
#1	13365.
#2	13056.

Sample Name: L34674-01ASD Acquired: 1/11/2017 16:50:42 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4586	1.523	.9969	.5316	.5469	.4781	.9836	419.6	.4680
Stddev	.0049	.027	.0069	.0005	.0020	.0012	.0150	.9	.0051
%RSD	1.074	1.790	.6948	.0943	.3701	.2514	1.525	.2233	1.083
#1	.4621	1.543	1.002	.5313	.5455	.4789	.9730	420.3	.4644
#2	.4551	1.504	.9920	.5320	.5483	.4772	.9942	419.0	.4715

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4728	.4695	.4915	.4907	.4983	1.262	1.271	.9988	109.8
Stddev	.0063	.0108	.0049	.0021	.0023	.018	.004	.0465	.7
%RSD	1.326	2.295	.9898	.4295	.4606	1.448	.3193	4.660	.5994
#1	.4684	.4618	.4881	.4892	.4999	1.275	1.274	1.032	109.3
#2	.4772	.4771	.4950	.4922	.4967	1.249	1.268	.9659	110.2

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.000	69.13	.6186	.4798	101.8	.4835	1.237	.9625	5.540
Stddev	.001	.36	.0051	.0030	.1	.0105	.023	.0094	.051
%RSD	.0983	.5192	.8178	.6301	.1464	2.174	1.844	.9798	.9266
#1	.9996	69.38	.6150	.4777	101.7	.4761	1.253	.9692	5.503
#2	1.001	68.88	.6222	.4820	101.9	.4910	1.221	.9559	5.576

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.085	.9684	1.021	14.36	30.73	.9273	1.094	.9910	1.909
Stddev	.014	.0030	.015	.17	.36	.0130	.002	.0021	.057
%RSD	.6584	.3118	1.440	1.169	1.169	1.406	.1630	.2142	2.998
#1	2.095	.9705	1.011	14.48	30.99	.9180	1.092	.9926	1.868
#2	2.075	.9663	1.032	14.24	30.48	.9365	1.095	.9895	1.949

Sample Name: L34674-01ASD Acquired: 1/11/2017 16:50:42 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: II170109-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.4911	.4743	.4981
Stddev	.0055	.0082	.0040
%RSD	1.114	1.724	.7943
#1	.4872	.4686	.4953
#2	.4949	.4801	.5009

Int. Std.	Y_3710
Units	Cts/S
Avg	13087.
Stddev	209.
%RSD	1.5981
#1	13235.
#2	12939.

Sample Name: L34674-02 Acquired: 1/11/2017 16:53:50 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0015	.2718	-.0257	.0400	.0546	.0017	.0076	349.2	-.0008
Stddev	.0039	.0074	.0082	.0013	.0005	.0001	.0021	4.3	.0007
%RSD	255.2	2.717	31.79	3.126	.9371	5.083	28.07	1.220	78.26
#1	.0012	.2770	-.0200	.0409	.0549	.0017	.0091	352.2	-.0013
#2	-.0043	.2666	-.0315	.0391	.0542	.0016	.0061	346.2	-.0004

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0020	-.0015	.0032	-.0024	.0040	.1160	.1211	-.0331	16.24
Stddev	.0006	.0001	.0015	.0000	.0042	.0099	.0044	.0280	.05
%RSD	29.59	6.241	48.22	1.690	103.7	8.500	3.647	84.71	.3036
#1	-.0016	-.0014	.0042	-.0025	.0069	.1229	.1243	-.0529	16.28
#2	-.0024	-.0015	.0021	-.0024	.0011	.1090	.1180	-.0133	16.21

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0220	32.43	.0807	.0012	1.502	-.0009	.1234	-.0073	.3155
Stddev	.0005	.45	.0019	.0019	.024	.0038	.0037	.0027	.0269
%RSD	2.386	1.395	2.333	157.8	1.609	434.2	2.977	36.89	8.528
#1	.0224	32.75	.0820	-.0001	1.519	.0018	.1260	-.0092	.2965
#2	.0217	32.11	.0793	.0026	1.485	-.0036	.1208	-.0054	.3345

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0223	.0002	.0092	4.916	10.52	-.0117	.6664	.0077	.0160
Stddev	.0060	.0000	.0159	.086	.18	.0081	.0039	.0004	.0429
%RSD	26.91	5.502	173.5	1.754	1.754	69.48	.5900	4.905	268.3
#1	.0266	.0002	-.0021	4.977	10.65	-.0174	.6692	.0080	.0463
#2	.0181	.0002	.0205	4.855	10.39	-.0059	.6637	.0075	-.0143

Sample Name: L34674-02 Acquired: 1/11/2017 16:53:50 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0004	.0054	.0081
Stddev	.0018	.0014	.0018
%RSD	431.2	25.83	21.54
#1	.0008	.0044	.0069
#2	-.0017	.0064	.0094

Int. Std.	Y_3710
Units	Cts/S
Avg	13235.
Stddev	19.
%RSD	.14020
#1	13248.
#2	13221.

Sample Name: CCV Acquired: 1/11/2017 16:57:02 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4937	1.018	1.989	1.017	.9903	1.024	.9888	50.90	1.001
Stddev	.0021	.003	.030	.010	.0055	.006	.0020	.10	.007
%RSD	.4190	.3129	1.498	1.000	.5529	.5458	.2051	.1972	.6789
#1	.4922	1.015	1.967	1.010	.9864	1.020	.9874	50.83	.9963
#2	.4951	1.020	2.010	1.024	.9942	1.028	.9903	50.97	1.006
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.009	.9748	.9936	.9901	1.008	.9955	1.004	.9957	9.823
Stddev	.010	.0150	.0148	.0023	.006	.0144	.005	.0342	.071
%RSD	1.012	1.535	1.486	.2330	.6468	1.451	.5527	3.437	.7280
#1	1.002	.9642	.9831	.9885	1.004	.9852	1.000	.9715	9.772
#2	1.016	.9854	1.004	.9917	1.013	1.006	1.008	1.020	9.873
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9835	50.97	.9912	1.030	50.42	1.035	2.666	1.932	25.33
Stddev	.0046	.04	.0048	.014	.29	.005	.024	.009	.31
%RSD	.4660	.0750	.4820	1.400	.5846	.5147	.8960	.4396	1.206
#1	.9803	51.00	.9879	1.020	50.21	1.031	2.649	1.926	25.11
#2	.9867	50.94	.9946	1.041	50.63	1.038	2.683	1.938	25.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 16:57:02 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.076	1.004	2.061	9.777	F 20.92	1.036	.9983	1.013	1.973
Stddev	.008	.003	.048	.005	.01	.012	.0066	.009	.039
%RSD	.4017	.3168	2.310	.0526	.0526	1.181	.6619	.8483	1.971
#1	2.070	1.002	2.027	9.773	20.91	1.027	.9936	1.007	1.945
#2	2.082	1.007	2.095	9.781	20.93	1.044	1.003	1.019	2.000
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.024	.9966	.9921
Stddev	.006	.0104	.0111
%RSD	.5961	1.046	1.120
#1	1.020	.9892	.9842
#2	1.029	1.004	.9999
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13209.
Stddev	152.
%RSD	1.1477
#1	13316.
#2	13101.

Sample Name: L34674-03 Acquired: 1/11/2017 17:03:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0002**	**.3101**	**-.0038**	**.0131**	**.3584**	**.0014**	**-.0098**	**346.0**	**.0023**
Stddev	.0019	.0041	.0212	.0030	.0038	.0002	.0075	1.6	.0001
%RSD	1187.	1.321	562.0	23.14	1.070	14.90	75.69	.4593	3.081
#1	.0012	.3130	.0112	.0152	.3556	.0016	-.0046	344.8	.0023
#2	-.0015	.3072	-.0188	.0109	.3611	.0013	-.0151	347.1	.0024

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009**	**.0012**	**.0030**	**-.0071**	**.0048**	**.1385**	**.1440**	**-.0311**	**20.02**
Stddev	.0005	.0005	.0017	.0001	.0031	.0056	.0011	.0347	.25
%RSD	58.25	45.39	58.65	.8666	63.67	4.008	.7495	111.6	1.266
#1	.0005	.0015	.0042	-.0071	.0070	.1346	.1432	-.0065	19.84
#2	.0013	.0008	.0017	-.0070	.0027	.1425	.1447	-.0556	20.20

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0513**	**33.39**	**.1321**	**.0042**	**3.087**	**.0057**	**.1531**	**-.0037**	**.8970**
Stddev	.0009	.15	.0003	.0002	.038	.0021	.0240	.0041	.0012
%RSD	1.777	.4414	.2437	5.913	1.242	36.36	15.65	110.1	.1310
#1	.0507	33.29	.1319	.0044	3.059	.0042	.1700	-.0066	.8962
#2	.0519	33.49	.1324	.0040	3.114	.0071	.1361	-.0008	.8978

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0031**	**-.0005**	**.0324**	**10.02**	**21.44**	**-.0059**	**.9045**	**.0116**	**.0144**
Stddev	.0099	.0002	.0102	.00	.00	.0076	.0097	.0013	.0058
%RSD	323.4	41.90	31.40	.0096	.0096	129.2	1.067	11.10	40.50
#1	.0039	-.0004	.0252	10.02	21.44	-.0005	.8976	.0125	.0103
#2	-.0101	-.0007	.0396	10.02	21.45	-.0113	.9113	.0107	.0185

Sample Name: L34674-03 Acquired: 1/11/2017 17:03:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0009	.0784	.0835
Stddev	.0025	.0016	.0027
%RSD	281.0	2.096	3.201
#1	-.0009	.0772	.0816
#2	.0027	.0795	.0854

Int. Std.	Y_3710
Units	Cts/S
Avg	13247.
Stddev	237.
%RSD	1.7899
#1	13415.
#2	13080.

Sample Name: L34674-04 Acquired: 1/11/2017 17:06:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028	.2342	-.0379	.0008	.5778	.0015	-.0063	346.7	.0014
Stddev	.0010	.0076	.0036	.0017	.0004	.0000	.0099	2.3	.0008
%RSD	36.40	3.261	9.589	217.2	.0631	1.743	156.4	.6729	54.17
#1	.0035	.2288	-.0354	.0020	.5776	.0015	.0007	348.4	.0009
#2	.0020	.2396	-.0405	-.0004	.5781	.0016	-.0133	345.1	.0019

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017	-.0010	.0006	-.0007	.0027	.0906	.0967	-.0151	9.912
Stddev	.0001	.0017	.0042	.0056	.0009	.0095	.0043	.0031	.051
%RSD	4.200	158.8	761.1	853.0	32.77	10.48	4.412	20.36	.5118
#1	.0017	-.0022	.0035	-.0047	.0021	.0973	.0998	-.0173	9.948
#2	.0016	.0001	-.0024	.0033	.0033	.0839	.0937	-.0130	9.876

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0467	30.42	.4728	.0060	3.581	.0131	.1000	.0013	1.498
Stddev	.0007	.21	.0001	.0033	.000	.0025	.0217	.0015	.020
%RSD	1.425	.6803	.0126	54.93	.0051	19.46	21.70	113.4	1.337
#1	.0472	30.57	.4728	.0083	3.581	.0149	.0846	.0003	1.483
#2	.0463	30.27	.4727	.0036	3.581	.0113	.1153	.0024	1.512

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008	-.0007	.0337	6.112	13.08	.0023	.7757	.0065	.0146
Stddev	.0313	.0001	.0160	.047	.10	.0002	.0001	.0009	.0216
%RSD	4119.	10.30	47.45	.7708	.7708	7.348	.0190	13.62	147.9
#1	-.0214	-.0007	.0450	6.146	13.15	.0022	.7756	.0071	-.0007
#2	.0229	-.0008	.0224	6.079	13.01	.0025	.7758	.0058	.0299

Sample Name: L34674-04 Acquired: 1/11/2017 17:06:36 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0017	.3384	.3512
Stddev	.0035	.0000	.0000
%RSD	209.0	.0082	.0112
#1	-.0008	.3384	.3512
#2	.0041	.3383	.3513

Int. Std.	Y_3710
Units	Cts/S
Avg	13577.
Stddev	158.
%RSD	1.1648
#1	13688.
#2	13465.

Sample Name: L34674-04SDL Acquired: 1/11/2017 17:09:47 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0012**	**.0785**	**-.0070**	**.0026**	**.1151**	**.0013**	**-.0067**	**68.30**	**-.0007**
Stddev	.0021	.0107	.0240	.0002	.0006	.0001	.0095	.57	.0002
%RSD	176.0	13.67	342.8	7.835	.5030	6.310	140.8	.8344	33.06
#1	.0003	.0709	-.0240	.0028	.1155	.0013	-.0000	68.70	-.0009
#2	-.0026	.0861	.0100	.0025	.1147	.0012	-.0134	67.89	-.0006

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0014**	**.0017**	**-.0000**	**-.0077**	**.0029**	**.0343**	**.0405**	**.0078**	**1.933**
Stddev	.0014	.0012	.0007	.0007	.0018	.0005	.0013	.0219	.011
%RSD	99.38	70.75	1691.	9.710	62.87	1.431	3.250	280.0	.5822
#1	-.0004	.0009	.0005	-.0082	.0016	.0340	.0396	-.0076	1.941
#2	-.0025	.0026	-.0006	-.0072	.0041	.0347	.0415	.0233	1.925

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0095**	**5.949**	**.0867**	**.0014**	**.6886**	**.0017**	**.0722**	**-.0069**	**.3504**
Stddev	.0001	.029	.0002	.0004	.0077	.0007	.0611	.0085	.0264
%RSD	1.417	.4814	.1863	28.96	1.115	41.24	84.67	123.6	7.526
#1	.0094	5.969	.0868	.0017	.6832	.0021	.1154	-.0129	.3318
#2	.0096	5.928	.0866	.0011	.6940	.0012	.0290	-.0009	.3691

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0007**	**-.0005**	**.0458**	**1.306**	**2.795**	**-.0111**	**.1537**	**.0050**	**.0307**
Stddev	.0080	.0002	.0205	.003	.007	.0056	.0006	.0009	.0176
%RSD	1216.	28.28	44.67	.2511	.2511	50.33	.3708	18.30	57.19
#1	-.0050	-.0004	.0314	1.304	2.790	-.0071	.1541	.0056	.0431
#2	.0063	-.0006	.0603	1.308	2.800	-.0150	.1533	.0043	.0183

Sample Name: L34674-04SDL Acquired: 1/11/2017 17:09:47 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0036	.0676	.0704
Stddev	.0010	.0010	.0022
%RSD	27.14	1.441	3.098
#1	-.0043	.0683	.0688
#2	-.0029	.0669	.0719

Int. Std.	Y_3710
Units	Cts/S
Avg	13256.
Stddev	152.
%RSD	1.1487
#1	13363.
#2	13148.

Sample Name: L34674-05 Acquired: 1/11/2017 17:12:59 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	.2954	-.0142	.0136	.2095	.0015	-.0166	366.6	.0058
Stddev	.0039	.0033	.0165	.0021	.0001	.0001	.0186	2.4	.0002
%RSD	1795.	1.111	115.9	15.35	.0607	6.514	112.3	.6554	2.619
#1	-.0030	.2931	-.0026	.0122	.2094	.0014	-.0034	368.3	.0057
#2	.0025	.2977	-.0259	.0151	.2096	.0016	-.0297	364.9	.0059

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033	-.0016	.0107	.0047	.0047	.1558	.1543	-.0322	8.428
Stddev	.0001	.0007	.0005	.0042	.0028	.0132	.0055	.0159	.032
%RSD	4.526	42.01	4.983	89.75	59.55	8.472	3.564	49.46	.3735
#1	.0034	-.0021	.0103	.0017	.0027	.1651	.1582	-.0434	8.450
#2	.0032	-.0011	.0110	.0077	.0067	.1464	.1504	-.0209	8.405

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0117	24.89	.1627	.0037	1.761	.0287	.2567	-.0048	.6636
Stddev	.0001	.17	.0002	.0008	.007	.0002	.0055	.0023	.0003
%RSD	.6385	.6896	.1067	22.07	.4264	.7047	2.150	46.86	.0489
#1	.0117	25.01	.1628	.0032	1.756	.0286	.2528	-.0032	.6638
#2	.0118	24.76	.1626	.0043	1.767	.0289	.2606	-.0064	.6634

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0025	-.0004	.0378	2.837	6.071	-.0102	.7683	.0136	.0056
Stddev	.0060	.0001	.0216	.058	.124	.0018	.0008	.0015	.0031
%RSD	238.8	23.40	57.15	2.044	2.044	18.02	.1000	11.25	55.80
#1	.0068	-.0005	.0225	2.878	6.159	-.0115	.7677	.0125	.0034
#2	-.0017	-.0003	.0531	2.796	5.983	-.0089	.7688	.0146	.0078

Sample Name: L34674-05 Acquired: 1/11/2017 17:12:59 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0040	.0349	.0386
Stddev	.0010	.0014	.0006
%RSD	25.86	3.886	1.594
#1	.0033	.0340	.0391
#2	.0047	.0359	.0382

Int. Std.	Y_3710
Units	Cts/S
Avg	13651.
Stddev	220.
%RSD	1.6148
#1	13807.
#2	13495.

Sample Name: L34674-06 Acquired: 1/11/2017 17:16:11 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003	.5421	-.0061	.0117	.2543	.0014	-.0156	380.1	.0097
Stddev	.0003	.0091	.0244	.0043	.0011	.0003	.0270	.9	.0001
%RSD	81.45	1.688	402.2	36.28	.4209	18.27	172.3	.2282	1.180
#1	.0005	.5485	-.0233	.0087	.2536	.0016	-.0347	379.4	.0096
#2	.0001	.5356	.0112	.0147	.2551	.0012	.0034	380.7	.0098

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0093	.0016	.0061	.0005	.0073	.2596	.2692	-.0163	8.113
Stddev	.0004	.0012	.0011	.0034	.0005	.0009	.0018	.0150	.124
%RSD	3.929	70.44	18.16	647.1	6.883	.3412	.6808	91.80	1.530
#1	.0096	.0025	.0053	-.0019	.0077	.2602	.2679	-.0057	8.026
#2	.0090	.0008	.0069	.0029	.0070	.2590	.2705	-.0269	8.201

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0236	17.92	.2693	.0038	1.526	.0323	.3512	-.0164	1.361
Stddev	.0009	.07	.0002	.0020	.004	.0020	.0618	.0061	.062
%RSD	3.882	.3950	.0697	54.20	.2720	6.327	17.59	37.14	4.543
#1	.0243	17.87	.2694	.0023	1.523	.0309	.3076	-.0207	1.317
#2	.0230	17.97	.2691	.0052	1.529	.0338	.3949	-.0121	1.405

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019	-.0005	.0323	4.035	8.634	-.0071	.6907	.0204	.0055
Stddev	.0062	.0000	.0204	.004	.009	.0165	.0032	.0007	.0230
%RSD	328.3	.8830	63.11	.1096	.1096	232.3	.4607	3.657	421.8
#1	.0063	-.0005	.0179	4.038	8.641	.0046	.6884	.0198	.0217
#2	-.0025	-.0005	.0468	4.031	8.627	-.0188	.6929	.0209	-.0108

Sample Name: L34674-06 Acquired: 1/11/2017 17:16:11 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0013	.2218	.2293
Stddev	.0040	.0020	.0044
%RSD	300.0	.8993	1.926
#1	.0041	.2232	.2262
#2	-.0015	.2204	.2325

Int. Std.	Y_3710
Units	Cts/S
Avg	13370.
Stddev	350.
%RSD	2.6170
#1	13618.
#2	13123.

Sample Name: L34674-07 Acquired: 1/11/2017 17:19:21 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0007	.2135	-.0283	.0210	.0344	.0015	.0090	269.7	-.0016
Stddev	.0015	.0134	.0087	.0035	.0003	.0000	.0369	3.2	.0005
%RSD	230.4	6.287	30.86	16.78	.7703	.2166	408.8	1.170	31.39
#1	-.0018	.2230	-.0345	.0185	.0346	.0015	-.0171	271.9	-.0012
#2	.0004	.2040	-.0221	.0234	.0342	.0015	.0352	267.4	-.0020

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0016	.0004	.0028	-.0033	.0048	.1072	.1113	-.0568	4.675
Stddev	.0007	.0011	.0014	.0012	.0057	.0083	.0074	.0161	.014
%RSD	44.28	286.9	49.75	35.86	117.9	7.707	6.690	28.32	.2891
#1	-.0021	-.0004	.0038	-.0025	.0089	.1130	.1165	-.0682	4.665
#2	-.0011	.0012	.0018	-.0041	.0008	.1014	.1060	-.0455	4.685

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0298	79.33	.0195	.0063	3.545	.0009	.0900	-.0047	.3128
Stddev	.0008	1.03	.0007	.0007	.028	.0041	.0211	.0107	.0064
%RSD	2.734	1.296	3.591	11.55	.8006	445.4	23.50	225.3	2.050
#1	.0304	80.06	.0200	.0069	3.565	.0038	.1049	-.0123	.3174
#2	.0293	78.60	.0190	.0058	3.525	-.0020	.0750	.0028	.3083

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005	-.0008	.0111	8.002	17.12	-.0122	.6248	.0077	.0221
Stddev	.0147	.0003	.0146	.163	.35	.0091	.0048	.0005	.0140
%RSD	2728.	32.36	131.6	2.040	2.040	74.71	.7645	5.958	63.53
#1	.0109	-.0007	.0215	8.117	17.37	-.0058	.6282	.0080	.0320
#2	-.0098	-.0010	.0008	7.886	16.88	-.0187	.6214	.0074	.0122

Sample Name: L34674-07 Acquired: 1/11/2017 17:19:21 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0010	.0064	.0094
Stddev	.0020	.0014	.0006
%RSD	204.5	21.36	6.712
#1	.0004	.0074	.0098
#2	-.0024	.0054	.0089

Int. Std.	Y_3710
Units	Cts/S
Avg	13592.
Stddev	76.
%RSD	.55769
#1	13646.
#2	13538.

Sample Name: L34674-08 Acquired: 1/11/2017 17:22:32 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012	.2091	-.0173	.0070	.1513	.0014	.0061	338.7	.0006
Stddev	.0007	.0169	.0261	.0037	.0003	.0000	.0165	.5	.0015
%RSD	62.21	8.088	150.6	53.18	.2281	1.009	272.6	.1412	243.4
#1	.0007	.2210	-.0357	.0044	.1510	.0014	-.0056	339.0	-.0004
#2	.0017	.1971	.0011	.0096	.1515	.0014	.0177	338.3	.0016

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0020	-.0021	.0026	-.0044	.0046	.0986	.1038	.0065	7.915
Stddev	.0008	.0006	.0014	.0031	.0017	.0080	.0006	.0181	.013
%RSD	38.94	30.82	52.26	69.91	37.04	8.081	.6013	278.6	.1623
#1	-.0015	-.0016	.0016	-.0022	.0058	.1042	.1042	.0193	7.906
#2	-.0026	-.0026	.0036	-.0066	.0034	.0930	.1033	-.0063	7.924

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0265	41.72	.0087	.0010	4.541	.0008	.0711	.0065	1.527
Stddev	.0002	.16	.0008	.0015	.021	.0039	.0066	.0081	.010
%RSD	.8868	.3759	9.637	142.3	.4696	486.4	9.342	123.7	.6468
#1	.0267	41.83	.0093	-.0000	4.526	-.0020	.0664	.0123	1.520
#2	.0263	41.61	.0081	.0021	4.556	.0036	.0758	.0008	1.534

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009	-.0009	.0345	5.577	11.93	-.0112	.4308	.0074	-.0031
Stddev	.0020	.0001	.0041	.006	.01	.0137	.0010	.0000	.0069
%RSD	219.7	16.10	11.80	.1096	.1096	122.3	.2237	.3792	219.8
#1	-.0005	-.0008	.0316	5.581	11.94	-.0208	.4301	.0073	-.0080
#2	.0023	-.0010	.0373	5.572	11.92	-.0015	.4314	.0074	.0017

Sample Name: L34674-08 Acquired: 1/11/2017 17:22:32 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0019	.0109	.0150
Stddev	.0008	.0018	.0003
%RSD	41.17	16.47	1.902
#1	-.0013	.0122	.0148
#2	-.0024	.0096	.0152

Int. Std.	Y_3710
Units	Cts/S
Avg	13362.
Stddev	188.
%RSD	1.4106
#1	13495.
#2	13228.

Sample Name: L34674-09 Acquired: 1/11/2017 17:25:43 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0006**	**.1882**	**-.0284**	**.0250**	**.2148**	**.0016**	**-.0173**	**365.9**	**.0001**
Stddev	.0004	.0108	.0061	.0022	.0016	.0001	.0008	.8	.0005
%RSD	59.15	5.725	21.51	8.907	.7600	6.431	4.393	.2190	600.0
#1	-.0009	.1958	-.0241	.0234	.2137	.0017	-.0178	365.3	-.0003
#2	-.0004	.1805	-.0327	.0266	.2160	.0015	-.0168	366.4	.0004

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0016**	**.0035**	**-.0014**	**.0055**	**.1086**	**.1164**	**-.0058**	**6.036**
Stddev	.0010	.0001	.0017	.0002	.0008	.0049	.0001	.0098	.065
%RSD	135.6	6.509	47.48	13.98	14.58	4.492	.0527	168.9	1.075
#1	-.0000	.0015	.0023	-.0012	.0049	.1120	.1163	-.0127	5.990
#2	-.0015	.0017	.0047	-.0015	.0061	.1051	.1164	.0011	6.082

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0203**	**18.51**	**.2363**	**-.0002**	**3.908**	**.0534**	**.1428**	**-.0246**	**.4087**
Stddev	.0005	.04	.0018	.0012	.018	.0065	.0032	.0065	.0363
%RSD	2.304	.2243	.7695	578.1	.4704	12.11	2.233	26.55	8.888
#1	.0199	18.48	.2350	-.0010	3.895	.0489	.1451	-.0292	.3830
#2	.0206	18.54	.2376	.0006	3.921	.0580	.1405	-.0199	.4343

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0060**	**-.0007**	**.0335**	**4.483**	**9.594**	**-.0172**	**.5722**	**.0054**	**-.0064**
Stddev	.0089	.0001	.0125	.043	.091	.0087	.0034	.0009	.0182
%RSD	149.3	7.922	37.32	.9496	.9496	50.84	.5872	16.32	286.5
#1	-.0003	-.0006	.0247	4.513	9.658	-.0234	.5698	.0048	-.0193
#2	.0123	-.0007	.0424	4.453	9.530	-.0110	.5745	.0060	.0065

Sample Name: L34674-09 Acquired: 1/11/2017 17:25:43 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0001	.0719	.0818
Stddev	.0012	.0026	.0014
%RSD	997.8	3.654	1.681
#1	.0007	.0700	.0828
#2	-.0010	.0738	.0808

Int. Std.	Y_3710
Units	Cts/S
Avg	13652.
Stddev	234.
%RSD	1.7164
#1	13817.
#2	13486.

Sample Name: L34674-10 Acquired: 1/11/2017 17:28:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0003**	**.2597**	**-.0168**	**.0379**	**.1966**	**.0015**	**-.0127**	**379.7**	**.0012**
Stddev	.0017	.0079	.0120	.0037	.0008	.0004	.0037	3.2	.0008
%RSD	503.7	3.048	71.75	9.788	.3976	29.11	29.44	.8425	68.05
#1	.0008	.2541	-.0253	.0353	.1972	.0018	-.0101	382.0	.0017
#2	-.0015	.2653	-.0083	.0405	.1961	.0012	-.0154	377.4	.0006

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**.0060**	**.0066**	**.0011**	**.0054**	**.1428**	**.1480**	**-.0304**	**5.455**
Stddev	.0005	.0003	.0009	.0049	.0008	.0073	.0013	.0191	.004
%RSD	110.4	5.001	13.37	457.6	15.48	5.106	.8769	62.79	.0790
#1	-.0008	.0063	.0060	.0046	.0048	.1479	.1471	-.0169	5.451
#2	-.0001	.0058	.0073	-.0024	.0060	.1376	.1489	-.0439	5.458

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0169**	**12.82**	**.3947**	**.0025**	**2.601**	**.0584**	**.1017**	**-.0016**	**.6742**
Stddev	.0004	.14	.0010	.0002	.007	.0031	.0288	.0079	.0047
%RSD	2.405	1.105	.2415	8.828	.2671	5.313	28.36	485.3	.6910
#1	.0172	12.92	.3954	.0024	2.596	.0562	.1221	-.0072	.6709
#2	.0166	12.72	.3940	.0027	2.606	.0606	.0813	.0039	.6775

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0045**	**-.0004**	**.0257**	**3.407**	**7.292**	**-.0159**	**.3673**	**.0088**	**.0230**
Stddev	.0097	.0000	.0171	.002	.005	.0049	.0002	.0006	.0019
%RSD	215.9	6.231	66.66	.0714	.0714	30.77	.0421	6.811	8.424
#1	-.0024	-.0003	.0377	3.409	7.295	-.0194	.3674	.0093	.0216
#2	.0114	-.0004	.0136	3.406	7.288	-.0125	.3672	.0084	.0243

Sample Name: L34674-10 Acquired: 1/11/2017 17:28:54 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0008	.1761	.1838
Stddev	.0028	.0016	.0036
%RSD	333.8	.8812	1.980
#1	-.0029	.1750	.1813
#2	.0012	.1772	.1864

Int. Std.	Y_3710
Units	Cts/S
Avg	13533.
Stddev	240.
%RSD	1.7770
#1	13703.
#2	13363.

Sample Name: L34674-14 Acquired: 1/11/2017 17:32:04 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014	.2916	-.0095	.0181	.3620	.0016	-.0064	346.2	.0028
Stddev	.0002	.0058	.0125	.0012	.0020	.0001	.0056	.8	.0002
%RSD	18.43	1.986	131.7	6.859	.5632	9.012	87.13	.2316	6.402
#1	.0015	.2957	-.0007	.0190	.3606	.0017	-.0104	346.8	.0030
#2	.0012	.2875	-.0183	.0172	.3634	.0015	-.0025	345.6	.0027

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014	.0005	.0041	-.0021	.0025	.1352	.1371	-.0039	20.01
Stddev	.0013	.0029	.0010	.0028	.0009	.0014	.0016	.0270	.21
%RSD	94.03	533.5	24.66	133.3	34.69	1.054	1.146	696.6	1.055
#1	.0024	.0026	.0034	-.0001	.0032	.1342	.1360	.0152	19.86
#2	.0005	-.0015	.0048	-.0041	.0019	.1362	.1383	-.0229	20.16

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0728	32.11	.3181	.0044	3.219	.0062	.1186	.0082	.9452
Stddev	.0010	.12	.0007	.0018	.024	.0003	.0201	.0130	.0120
%RSD	1.366	.3616	.2076	40.55	.7361	4.120	16.98	159.3	1.266
#1	.0721	32.19	.3176	.0031	3.202	.0063	.1328	-.0010	.9537
#2	.0735	32.02	.3186	.0057	3.236	.0060	.1044	.0173	.9367

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007	-.0007	.0278	8.792	18.82	-.0033	.8786	.0105	.0223
Stddev	.0105	.0000	.0052	.008	.02	.0015	.0038	.0005	.0045
%RSD	1472.	6.780	18.64	.0887	.0887	45.84	.4321	5.040	20.32
#1	.0082	-.0006	.0314	8.787	18.80	-.0022	.8759	.0109	.0191
#2	-.0067	-.0007	.0241	8.798	18.83	-.0044	.8812	.0101	.0255

Sample Name: L34674-14 Acquired: 1/11/2017 17:32:04 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 5 Custom ID3:
Comment: WG416030

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0024	.1790	.1889
Stddev	.0003	.0010	.0032
%RSD	10.96	.5428	1.685
#1	-.0025	.1783	.1866
#2	-.0022	.1797	.1911

Int. Std.	Y_3710
Units	Cts/S
Avg	13605.
Stddev	195.
%RSD	1.4334
#1	13743.
#2	13467.

Sample Name: CCV Acquired: 1/11/2017 17:35:16 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4795	.9811	1.975	.9742	.9638	.9989	.9474	49.39	.9725
Stddev	.0002	.0041	.032	.0095	.0047	.0035	.0134	.01	.0111
%RSD	.0484	.4146	1.631	.9758	.4854	.3474	1.414	.0159	1.145
#1	.4797	.9839	1.952	.9675	.9605	.9964	.9379	49.39	.9647
#2	.4793	.9782	1.998	.9809	.9671	1.001	.9569	49.40	.9804
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9813	.9464	.9638	.9609	.9940	.9606	.9725	.9339	9.518
Stddev	.0108	.0075	.0091	.0010	.0073	.0009	.0018	.0054	.037
%RSD	1.101	.7944	.9439	.1041	.7364	.0953	.1839	.5774	.3864
#1	.9736	.9411	.9574	.9616	.9888	.9613	.9712	.9377	9.492
#2	.9889	.9518	.9702	.9602	.9992	.9600	.9738	.9301	9.544
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9499	49.67	.9630	1.007	49.40	1.000	2.591	1.899	24.34
Stddev	.0044	.08	.0011	.013	.28	.017	.039	.016	.22
%RSD	.4627	.1693	.1162	1.266	.5691	1.663	1.491	.8316	.8923
#1	.9468	49.61	.9622	.9976	49.20	.9883	2.564	1.888	24.19
#2	.9530	49.73	.9638	1.016	49.59	1.012	2.619	1.910	24.50
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 17:35:16 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.002	.9777	2.002	9.521	F 20.38	1.009	.9685	.9838	1.977
Stddev	.031	.0030	.061	.022	.05	.012	.0046	.0005	.037
%RSD	1.543	.3081	3.060	.2337	.2337	1.162	.4793	.0528	1.896
#1	1.980	.9755	2.045	9.506	20.34	1.001	.9653	.9834	1.951
#2	2.024	.9798	1.959	9.537	20.41	1.018	.9718	.9841	2.004
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.001	.9702	.9609
Stddev	.002	.0144	.0101
%RSD	.1868	1.481	1.052
#1	.9996	.9601	.9537
#2	1.002	.9804	.9680
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13481.
Stddev	187.
%RSD	1.3891
#1	13613.
#2	13348.

Sample Name: CCB Acquired: 1/11/2017 17:38:25 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0018**	**-.0130**	**-.0333**	**-.0012**	**.0021**	**.0020**	**-.0076**	**.0521**	**-.0007**
Stddev	.0015	.0048	.0214	.0030	.0003	.0002	.0109	.0075	.0002
%RSD	86.38	36.85	64.39	242.2	13.44	10.71	143.2	14.39	29.71
#1	-.0029	-.0096	-.0485	.0009	.0023	.0022	.0001	.0574	-.0005
#2	-.0007	-.0163	-.0181	-.0034	.0019	.0019	-.0153	.0468	-.0008
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**-.0036**	**.0024**	**-.0038**	**-.0000**	**-.0024**	**-.0043**	**.0027**	**.0453**
Stddev	.0010	.0023	.0011	.0015	.0032	.0021	.0021	.0205	.0242
%RSD	85.68	62.78	46.09	40.50	8916.	89.25	49.35	754.8	53.44
#1	-.0018	-.0052	.0031	-.0027	-.0023	-.0009	-.0028	.0172	.0282
#2	-.0004	-.0020	.0016	-.0049	.0022	-.0039	-.0059	-.0118	.0624
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0006**	**.0136**	**-.0071**	**.0030**	**.0499**	**-.0010**	**.0468**	**-.0144**	**.0618**
Stddev	.0000	.0329	.0000	.0061	.0078	.0057	.0324	.0008	.0142
%RSD	5.498	241.5	.6812	201.0	15.65	560.0	69.29	5.815	22.97
#1	.0007	.0369	-.0071	-.0013	.0554	.0030	.0697	-.0150	.0718
#2	.0006	-.0096	-.0070	.0073	.0444	-.0051	.0238	-.0138	.0518
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 17:38:25 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0050	-.0002	.0230	.0061	.0130	-.0079	.0017	-.0003	-.0041
Stddev	.0019	.0003	.0191	.0010	.0022	.0028	.0002	.0003	.0022
%RSD	37.65	180.7	82.96	16.63	16.63	35.29	12.09	115.8	54.88
#1	.0064	.0000	.0095	.0054	.0115	-.0098	.0018	-.0005	-.0025
#2	.0037	-.0004	.0365	.0068	.0146	-.0059	.0015	-.0001	-.0057
Check ?	Chk Pass	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	.0004	-.0009	.0040
Stddev	.0006	.0011	.0002
%RSD	134.2	122.8	4.435
#1	.0000	-.0016	.0039
#2	.0009	-.0001	.0041
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	13258.
Stddev	21.
%RSD	.15936
#1	13243.
#2	13273.

Sample Name: CCV Acquired: 1/11/2017 17:41:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4910	1.010	1.976	1.010	.9880	1.016	.9892	50.39	.9925
Stddev	.0058	.002	.012	.002	.0084	.006	.0043	.20	.0053
%RSD	1.183	.1638	.6165	.2203	.8528	.6031	.4398	.3972	.5389
#1	.4869	1.011	1.967	1.008	.9821	1.011	.9922	50.25	.9888
#2	.4951	1.008	1.985	1.011	.9940	1.020	.9861	50.53	.9963
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9988	.9697	.9920	.9847	1.003	.9926	.9973	1.007	9.848
Stddev	.0085	.0030	.0076	.0063	.013	.0127	.0035	.011	.097
%RSD	.8482	.3122	.7644	.6438	1.250	1.278	.3543	1.045	.9869
#1	.9928	.9675	.9866	.9802	.9945	.9836	.9948	1.015	9.779
#2	1.005	.9718	.9973	.9892	1.012	1.002	.9998	.9999	9.917
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9839	50.55	.9886	1.022	50.11	1.029	2.653	1.936	25.14
Stddev	.0089	.08	.0064	.017	.38	.005	.083	.037	.29
%RSD	.9069	.1609	.6485	1.657	.7662	.4575	3.145	1.932	1.152
#1	.9776	50.50	.9841	1.010	49.84	1.026	2.594	1.909	24.93
#2	.9903	50.61	.9931	1.033	50.38	1.032	2.712	1.962	25.34
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 17:41:39 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.088	.9985	2.041	9.749	F 20.86	1.022	.9899	1.005	1.980
Stddev	.004	.0069	.030	.029	.06	.008	.0075	.008	.024
%RSD	.2105	.6864	1.448	.3024	.3024	.7721	.7624	.8404	1.228
#1	2.091	.9937	2.020	9.728	20.82	1.017	.9845	.9989	1.963
#2	2.085	1.003	2.062	9.770	20.91	1.028	.9952	1.011	1.998
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.017	.9883	.9864
Stddev	.004	.0030	.0111
%RSD	.3689	.3035	1.121
#1	1.015	.9862	.9786
#2	1.020	.9904	.9942
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	13261.
Stddev	95.
%RSD	.71948
#1	13329.
#2	13194.

Sample Name: CCB Acquired: 1/11/2017 17:44:48 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021	-.0234	-.0288	-.0001	.0023	.0023	.0016	.0238	-.0000
Stddev	.0002	.0015	.0128	.0022	.0002	.0002	.0066	.0143	.0004
%RSD	8.411	6.513	44.53	2395.	10.81	10.61	409.9	60.31	3158.
#1	.0020	-.0245	-.0378	-.0017	.0025	.0025	-.0031	.0339	.0003
#2	.0022	-.0223	-.0197	.0015	.0021	.0021	.0063	.0136	-.0003
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0014	.0007	.0017	-.0058	.0028	.0021	-.0041	-.0029	-.0019
Stddev	.0006	.0002	.0004	.0003	.0004	.0028	.0028	.0067	.0423
%RSD	39.56	32.73	23.18	4.367	14.38	130.9	69.70	230.1	2251.
#1	-.0010	.0005	.0014	-.0056	.0025	.0041	-.0021	-.0077	.0280
#2	-.0018	.0008	.0020	-.0060	.0031	.0002	-.0061	.0018	-.0318
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014	-.0029	-.0072	-.0011	.0446	-.0013	.0381	-.0039	.0641
Stddev	.0003	.0072	.0001	.0010	.0095	.0010	.0114	.0075	.0033
%RSD	22.54	248.7	2.039	87.46	21.36	78.79	30.02	193.4	5.219
#1	.0016	.0022	-.0071	-.0004	.0513	-.0006	.0300	-.0092	.0664
#2	.0012	-.0079	-.0073	-.0018	.0378	-.0020	.0461	.0014	.0617
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 17:44:48 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0134	.0001	.0412	.0057	.0123	-.0030	.0016	.0007	.0190
Stddev	.0015	.0001	.0031	.0015	.0033	.0079	.0004	.0001	.0066
%RSD	11.37	136.6	7.510	26.75	26.75	259.7	22.79	14.98	34.74
#1	-.0123	.0002	.0434	.0068	.0146	-.0086	.0018	.0008	.0143
#2	-.0145	.0000	.0390	.0047	.0100	.0025	.0013	.0006	.0236
Check ?	Chk Pass	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	.0021	-.0000	.0022
Stddev	.0037	.0006	.0008
%RSD	177.1	1558.	38.84
#1	-.0005	-.0004	.0027
#2	.0047	.0004	.0016
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	13627.
Stddev	132.
%RSD	.97011
#1	13720.
#2	13533.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52458	PCN	Nitric acid:	52458	PCN
Hydrochloric acid:	52395	PCN	Hydrochloric acid:	52395	PCN

VERIFIED BY: AEB 1/12/17

Saturated Paste

QC List Type: QC-ICP-SP
QCListMatClass: LIQUID
Bench Sheet List: I-ICP2-D-SP
QC Ref: MA-ICP-D-SOIL
Group ID: MA-G-ICP_-SP
Method Ref: M6010B
SOP Ref: SOPII012

WG416011

ACZ Laboratories, Inc

Instrument ID: ICP8
Analyst: LEB
ACZ Dept: 33
Create Date: 01/11/2017 9:52
Start Date/Time: 1/11/17
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	CA SP	K SP	MG SP	NA SP	Dilution
1	WG416011ICV	II161209-1			1	✓	✓	✓	✓	1
2	WG416011ICB	NONE			1	✓	✓	✓	✓	1
3	WG416011PQV	II161228-3			1	✓	✓	✓	✓	1
4	WG416011ICSAB	II161031-5			1	✓	✓	✓	✓	1
5	L34445-01	TP-6_7_9 (2-5)			1	✓	✓	✓	✓	1
6	L34445-02	TP-12 (2-4)			1	✓	✓	✓	✓	1
7	L34445-03	TP-15_16 (2-13)			1	✓	✓	✓	✓	1
8	L34445-04	TP-20 (1-4)			1	✓	✓	✓	✓	1
9	L34445-04DUP	NONE			1	✓	✓	✓	✓	1
10	L34674-01	SB-06GT (1.5-10)			1	✓	✓	✓	✓	1
11	L34674-02	SB-07GT (0-4)			1	✓	✓	✓	✓	1
12	L34674-03	SB-09GT (8-12)			1	✓	✓	✓	✓	1
13	WG416011CCV1	II161227-1			1	✓	✓	✓	✓	1
14	WG416011CCB1	NONE			1	✓	✓	✓	✓	1
15	L34674-04	SB-09GT (18-22)			1	✓	✓	✓	✓	1
16	L34674-05	SB-12GT (0-27)			1	✓	✓	✓	✓	1
17	L34674-06	SB-13AL (0-25)			1	✓	✓	✓	✓	1
18	L34674-07	SB-14AL (0-15)			1	✓	✓	✓	✓	1
19	L34674-08	SB-14AL (15-35)			1	✓	✓	✓	✓	1
20	L34674-09	SB-15AL (0-25)			1	✓	✓	✓	✓	1
21	L34674-10	SB-15AL (25-50)			1	✓	✓	✓	✓	1
22	L34674-14	SB-09GT (8-12-DUPLIC			1	✓	✓	✓	✓	1
23	WG416011CCV2	II161227-1			1	✓	✓	✓	✓	1
24	WG416011CCB2	NONE			1	✓	✓	✓	✓	1

Report Comments:

Internal Comments

AREV: LEB 1/11/17
Initials, Date

SREV: 1-11-17
Initials, Date

L34674-1701201346

1/11/2017 9:53:04 AM 122316

Saturated Paste

QC List Type: QC-ICP-SP
QCListMatClass: LIQUID
Bench Sheet List: I-ICP2-D-SP
QC Ref: MA-ICP-D-SOIL
Group ID: MA-G-ICP_-SP
Method Ref: M6010B
SOP Ref: SOPII012

WG416011

ACZ Laboratories, Inc

Instrument ID: ICP8
Analyst:
ACZ Dept: 33
Create Date: 01/11/2017 9:52
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

L34674-1701201346

1/11/2017 9:53:04 AM 122316

ACZ Laboratories, Inc.

ICP DATA REVIEW CHECKLIST

Reviewed By:	LEB
Date:	1/11/17
Approved By:	[illegible]
Date:	1/11/17

Work Group:	WG416011
Sample Type:	Sat. Paste
Analysis Date:	1/11/17
Analyst:	LEB

Instrument Checklist	**Yes**	**No**	**N / A**
1) Is the correct run date associated with the workgroup?	✓		
2) Are all of the QC critera listed in LIMS within specified limits? **	✓		
3) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
4) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
5) Is a current standard/reagent form attached to the workgroup?	✓		
6) Have all dilutions performed at the bench been checked off on the benchsheet?			✓
7) Has any sample on a 2x dilution been checked for proper mixing (review raw data)?			✓
8) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			✓
9) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
10) Are any samples that have recoveries outside of limits for the Yttrium Internal Standard set to REDO?			✓
11) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Analytical Problem	Corrective action
	All Passing	

FRMII009.06.13.14

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416011

Date Reported: 11-Jan-17
Run ID: R1491480
Date Analyzed: 11-Jan-17
ICAL Workgroup:
Instrument ID: ICP8

WG416011ICV

Tag:

Measured: 1/11/2017 10:07:43 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	99.4	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	99	1		%	++	0.1	0.5			
SREV	CALCIUM	RSD	0.691	1		mg/L	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	99.3	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	99	1		%	++	0.2	1			
SREV	MAGNESIUM	RSD	0.824	1		mg/L	++	0.2	1			
SREV	POTASSIUM	FOUND	20.0	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	100	1		%	++	0.2	1			
SREV	POTASSIUM	RSD	0.669	1		mg/L	++	0.2	1			
SREV	SODIUM	FOUND	99.9	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	100	1		%	++	0.2	1			
SREV	SODIUM	RSD	0.836	1		mg/L	++	0.2	1			
SREV	YTTRIUM	REC	100.65	1		%	++	0.001	0.005			

WG416011ICB

Tag:

Measured: 1/11/2017 10:10:47 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	102.07	1		%	++	0.001	0.005			

WG416011PQV

Tag:

Measured: 1/11/2017 10:13:59 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	0.482	1	B	mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	96	1	B	%	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	1.000	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	100	1		%	++	0.2	1			
SREV	POTASSIUM	FOUND	1.03	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	103	1		%	++	0.2	1			
SREV	SODIUM	FOUND	1.08	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	108	1		%	++	0.2	1			
SREV	YTTRIUM	REC	102.64	1		%	++	0.001	0.005			

WG416011ICSAB

Tag:

Measured: 1/11/2017 10:17:11 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	238	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	95	1		%	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	246	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	98	1		%	++	0.2	1			
SREV	POTASSIUM	FOUND	24.7	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	99	1		%	++	0.2	1			
SREV	SODIUM	FOUND	25.3	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	101	1		%	++	0.2	1			
SREV	YTTRIUM	REC	102.92	1		%	++	0.001	0.005			

L34445-01

Tag:

Measured: 1/11/2017 10:23:29 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.915	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.529	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.105	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.145	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	106	1		meq/L	++	0.001	0.005			

L34445-02

Tag:

Measured: 1/11/2017 10:26:37 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	3.01	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.279	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0843	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.104	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34445-03

Tag:

Measured: 1/11/2017 10:29:48 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.886	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.568	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.161	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.234	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34445-04

Tag:

Measured: 1/11/2017 10:32:56 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.702	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.655	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.198	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.0878	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	108	1		meq/L	++	0.001	0.005			

L34445-04DUP

Tag: Measured: 1/11/2017 10:36:05 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	0.735	1		meq/L	++	0.005	0.025			
SREV	CALCIUM	RPD	5	1		%	++	0.005	0.025			
SREV	MAGNESIUM	FOUND	0.677	1		meq/L	++	0.017	0.082			
SREV	MAGNESIUM	RPD	3	1		%	++	0.017	0.082			
SREV	POTASSIUM	FOUND	0.195	1		meq/L	++	0.0051	0.0256			
SREV	POTASSIUM	RPD	2	1		%	++	0.0051	0.0256			
SREV	SODIUM	FOUND	0.0930	1		meq/L	++	0.0087	0.0435			
SREV	SODIUM	RPD	6	1		%	++	0.0087	0.0435			
SREV	YTTRIUM	REC	106.83	1		meq/L	++	0.001	0.005			

L34674-01

Tag: Measured: 1/11/2017 10:39:13 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	2.46	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.633	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.145	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.171	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	106	1		meq/L	++	0.001	0.005			

L34674-02

Tag: Measured: 1/11/2017 10:42:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.963	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.611	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.251	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.0899	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

L34674-03

Tag: Measured: 1/11/2017 10:45:33 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.40	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.563	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.230	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.304	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34674-04

Tag: Measured: 1/11/2017 10:48:43 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.30	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.382	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0825	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.241	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

L34674-05

Tag: Measured: 1/11/2017 10:51:55 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	2.39	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.656	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.113	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.192	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

WG416011CCV1

Tag: Measured: 1/11/2017 10:55:07 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	49.4	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	99	1		%	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	49.5	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	99	1		%	++	0.2	1			
SREV	POTASSIUM	FOUND	9.51	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	95	1		%	++	0.2	1			
SREV	SODIUM	FOUND	49.4	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	99	1		%	++	0.2	1			
SREV	YTTRIUM	REC	104.53	1		%	++	0.001	0.005			

WG416011CCB1

Tag: Measured: 1/11/2017 10:58:14 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	103.07	1		%	++	0.001	0.005			

L34674-06

Tag: Measured: 1/11/2017 11:01:28 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	2.59	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.778	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.167	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.268	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34674-07

Tag: Measured: 1/11/2017 11:04:39 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	0.996	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	1.89	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0456	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.330	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	106	1		meq/L	++	0.001	0.005			

L34674-08

Tag: Measured: 1/11/2017 11:07:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	2.15	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	1.25	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0936	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.572	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

L34674-09

Tag: Measured: 1/11/2017 11:11:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.28	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.413	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0812	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.502	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

L34674-10

Tag:

Measured: 1/11/2017 11:14:14 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.29	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.392	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.0959	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.445	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	105	1		meq/L	++	0.001	0.005			

L34674-14

Tag:

Measured: 1/11/2017 11:17:25 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	CA-SP	1.35	1		meq/L	++	0.005	0.025			
SREV	MAGNESIUM	MG-SP	0.539	1		meq/L	++	0.017	0.082			
SREV	POTASSIUM	K-SP	0.219	1		meq/L	++	0.0051	0.0256			
SREV	SODIUM	NA-SP	0.307	1		meq/L	++	0.0087	0.0435			
NEED	YTTRIUM	REC	107	1		meq/L	++	0.001	0.005			

WG416011CCV2

Tag:

Measured: 1/11/2017 11:20:35 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND	50.0	1		mg/L	++	0.1	0.5			
SREV	CALCIUM	REC	100	1		%	++	0.1	0.5			
SREV	MAGNESIUM	FOUND	49.7	1		mg/L	++	0.2	1			
SREV	MAGNESIUM	REC	99	1		%	++	0.2	1			
SREV	POTASSIUM	FOUND	9.72	1		mg/L	++	0.2	1			
SREV	POTASSIUM	REC	97	1		%	++	0.2	1			
SREV	SODIUM	FOUND	49.8	1		mg/L	++	0.2	1			
SREV	SODIUM	REC	100	1		%	++	0.2	1			
SREV	YTTRIUM	REC	104.62	1		%	++	0.001	0.005			

WG416011CCB2

Tag:

Measured: 1/11/2017 11:23:43 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CALCIUM	FOUND		1	U	mg/L	++	0.1	0.5			
SREV	MAGNESIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	POTASSIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	SODIUM	FOUND		1	U	mg/L	++	0.2	1			
SREV	YTTRIUM	REC	104.52	1		%	++	0.001	0.005			

Sample Name: Blank Acquired: 1/11/2017 9:55:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0002**	**-.0001**	**-.0000**	**.0001**	**.0028**	**-.0075**	**.0001**	**-.0077**	**-.0002**
Stddev	.0003	.0000	.0000	.0000	.0003	.0000	.0000	.0003	.0000
%RSD	158.4	63.30	92.93	41.15	11.01	.2308	22.99	4.205	1.700
#1	-.0004	-.0000	-.0000	.0001	.0030	-.0075	.0001	-.0075	-.0002
#2	.0000	-.0001	-.0000	.0001	.0026	-.0075	.0002	-.0079	-.0002

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**-.0000**	**-.0000**	**.0002**	**.0007**	**.0002**	**.0004**	**.0003**	**.0065**
Stddev	.0000	.0000	.0000	.0002	.0001	.0001	.0001	.0000	.0009
%RSD	41.15	216.9	86.44	81.54	18.65	45.05	18.61	9.994	14.19
#1	.0000	.0000	-.0001	.0003	.0008	.0001	.0003	.0003	.0071
#2	.0000	-.0000	-.0000	.0001	.0006	.0002	.0004	.0002	.0058

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.0035**	**-.0000**	**.0003**	**.0000**	**.0099**	**.0000**	**-.0002**	**.0000**	**.0001**
Stddev	.0002	.0000	.0001	.0000	.0003	.0000	.0000	.0000	.0000
%RSD	4.664	26.60	46.41	60.06	3.113	72.67	3.781	34.59	20.72
#1	-.0034	-.0000	.0004	.0001	.0101	.0000	-.0002	.0001	.0001
#2	-.0036	-.0000	.0002	.0000	.0097	.0000	-.0002	.0000	.0001

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0002**	**.0001**	**.0005**	**.0005**	**.0000**	**.0010**	**.0001**	**-.0000**
Stddev	.0000	.0003	.0000	.0001	.0001	.0000	.0002	.0000	.0000
%RSD	97.66	110.5	11.55	13.93	13.93	277.3	26.04	15.29	68.20
#1	.0000	.0004	.0001	.0005	.0005	-.0000	.0008	.0002	-.0001
#2	.0000	.0001	.0001	.0006	.0006	.0000	.0011	.0001	-.0000

Sample Name: Blank Acquired: 1/11/2017 9:55:11 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	-.0004	-.0000	.0001
Stddev	.0000	.0001	.0000
%RSD	11.43	201.9	21.40
#1	-.0003	.0000	.0001
#2	-.0004	-.0001	.0001

Int. Std.	Y_3710
Units	Cts/S
Avg	11782.
Stddev	57.
%RSD	.48244
#1	11822.
#2	11741.

Sample Name: L34445-03 Acquired: 1/11/2017 10:29:48 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0005	15.62	-.0174	.0700	.0806	.0068	-.0180	17.76	.0046
Stddev	.0057	.03	.0106	.0006	.0001	.0000	.0161	.11	.0004
%RSD	1259.	.1974	60.61	.8388	.1029	.4934	89.60	.6079	8.355
#1	-.0045	15.64	-.0249	.0704	.0806	.0068	-.0066	17.68	.0043
#2	.0036	15.60	-.0100	.0695	.0807	.0067	-.0294	17.83	.0049

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044	.0099	.0822	.0748	.0109	8.633	8.526	-.0278	6.315
Stddev	.0006	.0004	.0037	.0062	.0033	.031	.000	.0230	.016
%RSD	14.30	4.497	4.495	8.263	29.75	.3551	.0018	82.74	.2468
#1	.0049	.0096	.0796	.0704	.0132	8.654	8.526	-.0115	6.326
#2	.0040	.0102	.0849	.0791	.0086	8.611	8.526	-.0440	6.304

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0144	6.899	.1529	.0083	5.384	.0193	.7705	.0240	4.476
Stddev	.0004	.021	.0002	.0037	.027	.0034	.0051	.0034	.134
%RSD	2.841	.2999	.1173	44.22	.4952	17.60	.6581	14.04	2.998
#1	.0141	6.913	.1528	.0109	5.366	.0169	.7740	.0216	4.382
#2	.0147	6.884	.1531	.0057	5.403	.0217	.7669	.0264	4.571

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0086	.0059	-.0201	37.34	79.90	.0246	.0692	.5000	.0163
Stddev	.0178	.0002	.0057	.15	.32	.0034	.0002	.0011	.0034
%RSD	207.4	2.739	28.37	.4052	.4052	13.62	.2989	.2210	21.03
#1	-.0040	.0060	-.0241	37.44	80.13	.0223	.0690	.5008	.0139
#2	.0211	.0058	-.0161	37.23	79.67	.0270	.0693	.4992	.0187

Sample Name: L34445-03 Acquired: 1/11/2017 10:29:48 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-15_16 (2- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0394	.0877	.0888
Stddev	.0000	.0006	.0001
%RSD	.1223	.7321	.0890
#1	.0394	.0872	.0888
#2	.0394	.0881	.0889

Int. Std.	Y_3710
Units	Cts/S
Avg	12425.
Stddev	190.
%RSD	1.5269
#1	12559.
#2	12291.

Sample Name: CCB Acquired: 1/11/2017 10:58:14 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0007**	**.0169**	**.0086**	**.0093**	**.0040**	**.0071**	**.0163**	**-.0444**	**.0042**
Stddev	.0025	.0055	.0056	.0052	.0001	.0003	.0079	.0269	.0009
%RSD	349.7	32.40	65.24	55.51	2.794	3.577	48.29	60.63	21.53
#1	.0010	.0208	.0046	.0129	.0041	.0073	.0107	-.0253	.0049
#2	-.0025	.0131	.0126	.0056	.0040	.0070	.0218	-.0634	.0036
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0049**	**.0065**	**.0130**	**.0075**	**-.0013**	**.0029**	**.0073**	**-.0194**	**-.0003**
Stddev	.0000	.0011	.0025	.0030	.0003	.0081	.0023	.0478	.0151
%RSD	.4232	17.36	19.05	39.51	19.53	282.3	32.18	245.8	5857.
#1	.0049	.0073	.0112	.0096	-.0012	-.0029	.0089	.0143	.0104
#2	.0049	.0057	.0147	.0054	-.0015	.0086	.0056	-.0532	-.0109
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0011**	**-.0287**	**.0016**	**.0062**	**.0543**	**.0011**	**-.0311**	**.0160**	**.0189**
Stddev	.0000	.0135	.0001	.0002	.0098	.0008	.0048	.0132	.0160
%RSD	4.583	47.13	3.405	2.747	18.10	70.95	15.57	82.30	84.99
#1	.0010	-.0191	.0015	.0060	.0613	.0005	-.0345	.0067	.0075
#2	.0011	-.0382	.0016	.0063	.0474	.0016	-.0277	.0253	.0302
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 10:58:14 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0130	.0034	.0003	.0209	.0446	.0093	.0035	.0025	-.0131
Stddev	.0269	.0003	.0004	.0047	.0100	.0182	.0002	.0011	.0184
%RSD	207.4	8.518	111.4	22.41	22.41	194.6	5.863	42.69	140.4
#1	.0320	.0036	.0001	.0175	.0376	-.0035	.0036	.0033	-.0001
#2	-.0061	.0032	.0006	.0242	.0517	.0222	.0033	.0018	-.0261
Check ?	Chk Pass	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	-.0002	.0068	.0050
Stddev	.0003	.0003	.0004
%RSD	147.9	4.252	8.567
#1	.0000	.0070	.0053
#2	-.0004	.0066	.0047
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	12144.
Stddev	68.
%RSD	.55763
#1	12192.
#2	12096.

Sample Name: CalStd-1 Acquired: 1/11/2017 9:58:22 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0242**	**.1407**	**.0040**	**.0312**	**3.490**	**1.644**	**.0064**	**.0429**	**.0622**
Stddev	.0001	.0002	.0001	.0006	.003	.003	.0001	.0003	.0008
%RSD	.5570	.1173	2.541	1.889	.0949	.1884	1.314	.6104	1.289
#1	.0242	.1406	.0039	.0308	3.487	1.646	.0063	.0431	.0616
#2	.0243	.1408	.0041	.0317	3.492	1.642	.0065	.0427	.0628

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0501**	**.0184**	**.0648**	**.0891**	**.0481**	**.0427**	**.1086**	**.0039**	**.1365**
Stddev	.0008	.0002	.0008	.0003	.0002	.0003	.0006	.0002	.0004
%RSD	1.540	1.317	1.267	.3526	.3606	.6646	.5361	4.908	.2709
#1	.0496	.0182	.0642	.0893	.0480	.0429	.1090	.0038	.1362
#2	.0507	.0185	.0654	.0888	.0482	.0425	.1082	.0040	.1367

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.8307**	**.0212**	**.2610**	**.0137**	**.1177**	**.0032**	**.0087**	**.0040**	**.0024**
Stddev	.0011	.0002	.0003	.0002	.0001	.0001	.0001	.0000	.0000
%RSD	.1377	.8089	.1289	1.204	.0756	1.922	.5793	.9906	.5349
#1	.8315	.0213	.2612	.0136	.1178	.0031	.0086	.0040	.0024
#2	.8299	.0210	.2607	.0138	.1177	.0032	.0087	.0041	.0024

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.8035**	**.0040**	**.0387**	**.0387**	**.0061**	**2.580**	**.0899**	**.0097**	**.0202**
Stddev	.0010	.0001	.0001	.0001	.0000	.001	.0001	.0001	.0000
%RSD	.1268	1.425	.3421	.3421	.2215	.0434	.1004	1.251	.0687
#1	.8042	.0040	.0388	.0388	.0061	2.580	.0899	.0097	.0203
#2	.8028	.0041	.0386	.0386	.0061	2.579	.0900	.0098	.0202

Sample Name: CalStd-1 Acquired: 1/11/2017 9:58:22 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0215	.0315
Stddev	.0004	.0005
%RSD	1.832	1.588
#1	.0212	.0311
#2	.0217	.0318

Int. Std.	Y_3710
Units	Cts/S
Avg	12193.
Stddev	180.
%RSD	1.4774
#1	12320.
#2	12066.

Sample Name: CalStd-2 Acquired: 1/11/2017 10:01:28 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0491**	**.2848**	**.0081**	**.0629**	**7.049**	**3.357**	**.0127**	**.0942**	**.1259**
Stddev	.0005	.0031	.0000	.0000	.065	.036	.0001	.0017	.0004
%RSD	.9959	1.083	.5210	.0513	.9213	1.076	.4247	1.836	.2947
#1	.0494	.2870	.0081	.0630	7.095	3.383	.0127	.0954	.1261
#2	.0487	.2826	.0081	.0629	7.003	3.332	.0127	.0929	.1256

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.1011**	**.0373**	**.1313**	**.1791**	**.0960**	**.0860**	**.2196**	**.0076**	**.2645**
Stddev	.0004	.0003	.0001	.0016	.0008	.0010	.0020	.0003	.0029
%RSD	.3788	.7731	.0419	.9086	.8222	1.214	.9276	3.742	1.113
#1	.1013	.0375	.1314	.1803	.0966	.0867	.2210	.0078	.2666
#2	.1008	.0371	.1313	.1780	.0955	.0852	.2181	.0074	.2625

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	P_2149	Pb2203	S_1820	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.663**	**.0433**	**.5242**	**.0277**	**.2297**	**.0065**	**.0175**	**.0079**	**.0049**
Stddev	.018	.0008	.0057	.0002	.0022	.0000	.0001	.0000	.0000
%RSD	1.094	1.750	1.086	.6744	.9706	.1714	.3131	.1564	.0303
#1	1.676	.0438	.5283	.0278	.2313	.0065	.0175	.0079	.0049
#2	1.650	.0428	.5202	.0275	.2281	.0065	.0174	.0080	.0049

Elem	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.618**	**.0081**	**.0773**	**.0773**	**.0122**	**5.202**	**.1816**	**.0197**	**.0413**
Stddev	.017	.0000	.0014	.0014	.0000	.055	.0022	.0001	.0005
%RSD	1.045	.1991	1.764	1.764	.3281	1.053	1.221	.4137	1.314
#1	1.630	.0081	.0783	.0783	.0123	5.240	.1831	.0196	.0416
#2	1.606	.0082	.0763	.0763	.0122	5.163	.1800	.0197	.0409

Sample Name: CalStd-2 Acquired: 1/11/2017 10:01:28 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.0435	.0634
Stddev	.0001	.0003
%RSD	.2840	.5160
#1	.0436	.0637
#2	.0434	.0632

Int. Std.	Y_3710
Units	Cts/S
Avg	12072.
Stddev	76.
%RSD	.62800
#1	12126.
#2	12019.

Sample Name: CalStd-3 Acquired: 1/11/2017 10:04:31 Type: Cal
Method: 6010B(v38) Mode: IR Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ca3158	K_7664	Mg2790	Na5895	Ni2316	S_1820
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.954	2.577	.4227	11.04	.0271	.0787
Stddev	.008	.007	.0012	.02	.0003	.0011
%RSD	.4298	.2561	.2755	.2054	.9785	1.443
#1	1.960	2.581	.4235	11.06	.0269	.0779
#2	1.948	2.572	.4219	11.03	.0272	.0795

Int. Std.	Y_3710
Units	Cts/S
Avg	11733.
Stddev	143.
%RSD	1.2146
#1	11834.
#2	11632.

Sample Name: ICV Acquired: 1/11/2017 10:07:43 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9778	2.023	3.932	2.002	1.937	1.968	1.942	99.41	1.927
Stddev	.0066	.004	.087	.051	.018	.019	.015	.69	.034
%RSD	.6724	.1881	2.225	2.575	.9143	.9761	.7446	.6905	1.766
#1	.9731	2.020	3.870	1.965	1.924	1.954	1.931	98.93	1.903
#2	.9824	2.025	3.993	2.038	1.949	1.981	1.952	99.90	1.951
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.934	1.910	1.949	1.915	1.951	1.932	1.935	1.947	20.00
Stddev	.032	.037	.044	.012	.030	.020	.013	.026	.13
%RSD	1.673	1.956	2.253	.6222	1.524	1.055	.6770	1.315	.6685
#1	1.911	1.883	1.918	1.906	1.930	1.918	1.925	1.965	19.91
#2	1.957	1.936	1.980	1.923	1.972	1.947	1.944	1.929	20.10
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.967	99.26	1.922	2.001	99.92	2.025	5.235	3.817	50.66
Stddev	.016	.82	.013	.043	.84	.036	.102	.094	1.24
%RSD	.7960	.8235	.6934	2.151	.8357	1.772	1.947	2.473	2.440
#1	1.956	98.68	1.913	1.970	99.33	2.000	5.163	3.751	49.79
#2	1.978	99.84	1.931	2.031	100.5	2.051	5.307	3.884	51.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICV Acquired: 1/11/2017 10:07:43 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.098**	**1.939**	**3.970**	**19.00**	F **40.67**	**2.006**	**1.941**	**1.954**	**3.892**
Stddev	.102	.013	.094	.14	.29	.053	.018	.019	.093
%RSD	2.480	.6795	2.366	.7143	.7143	2.662	.9285	.9812	2.380
#1	4.026	1.930	3.903	18.91	40.46	1.968	1.929	1.941	3.827
#2	4.170	1.949	4.036	19.10	40.87	2.044	1.954	1.968	3.958
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					20.00				
Range					5.440%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**1.976**	**1.895**	**1.955**
Stddev	.019	.037	.035
%RSD	.9502	1.945	1.795
#1	1.963	1.869	1.930
#2	1.989	1.921	1.979
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**11858.**
Stddev	142.
%RSD	1.2007
#1	11959.
#2	11758.

Sample Name: ICB Acquired: 1/11/2017 10:10:47 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008**	**.0155**	**-.0082**	**.0113**	**.0052**	**.0080**	**-.0166**	**.0065**	**.0052**
Stddev	.0018	.0006	.0106	.0048	.0005	.0004	.0191	.0355	.0001
%RSD	233.3	3.654	130.2	42.30	9.883	5.284	114.8	544.2	2.211
#1	.0020	.0159	-.0157	.0147	.0055	.0083	-.0031	.0317	.0051
#2	-.0005	.0151	-.0006	.0079	.0048	.0077	-.0301	-.0186	.0053
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0035**	**.0083**	**.0141**	**.0083**	**.0030**	**.0062**	**.0052**	**-.0225**	**-.0112**
Stddev	.0001	.0001	.0013	.0023	.0026	.0058	.0020	.0201	.0181
%RSD	2.054	1.736	9.143	28.07	86.99	92.58	38.60	89.21	161.0
#1	.0035	.0082	.0132	.0066	.0011	.0103	.0038	-.0367	.0016
#2	.0034	.0084	.0151	.0099	.0048	.0021	.0067	-.0083	-.0241
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0020**	**-.0136**	**.0028**	**.0067**	**.0916**	**.0045**	**-.0369**	**.0261**	**.0558**
Stddev	.0002	.0067	.0006	.0052	.0275	.0053	.0264	.0141	.0146
%RSD	11.35	49.30	21.97	77.82	29.99	118.3	71.59	53.90	26.12
#1	.0021	-.0089	.0033	.0030	.1111	.0007	-.0555	.0360	.0662
#2	.0018	-.0183	.0024	.0104	.0722	.0083	-.0182	.0161	.0455
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: ICB Acquired: 1/11/2017 10:10:47 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0146	.0044	-.0068	.0254	.0544	.0116	.0045	.0034	.0183
Stddev	.0164	.0003	.0066	.0131	.0280	.0091	.0005	.0003	.0116
%RSD	112.5	7.629	97.11	51.50	51.50	78.72	11.15	7.704	63.54
#1	.0262	.0047	-.0115	.0347	.0742	.0181	.0049	.0036	.0101
#2	.0030	.0042	-.0021	.0162	.0346	.0051	.0041	.0032	.0265
Check ?	Chk Pass	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	.0022	.0076	.0043
Stddev	.0029	.0001	.0007
%RSD	130.4	1.189	16.50
#1	.0002	.0076	.0047
#2	.0043	.0077	.0038
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	12026.
Stddev	143.
%RSD	1.1899
#1	12127.
#2	11924.

Sample Name: PQV Acquired: 1/11/2017 10:13:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0232	.1693	.1913	.0590	.0194	.0577	.2300	.4824	F .0201
Stddev	.0031	.0016	.0110	.0017	.0000	.0002	.0124	.0098	.0005
%RSD	13.28	.9458	5.770	2.957	.2515	.2997	5.399	2.030	2.287
#1	.0254	.1682	.1835	.0578	.0194	.0576	.2388	.4893	.0198
#2	.0211	.1705	.1991	.0602	.0193	.0578	.2212	.4754	.0204
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value									.0150
Range									30.44%

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0199	.0571	F .0657	.0617	.0575	.0586	.0557	.5086	1.026
Stddev	.0007	.0009	.0005	.0000	.0006	.0033	.0021	.0067	.018
%RSD	3.550	1.561	.8232	.0444	.9921	5.610	3.788	1.314	1.728
#1	.0194	.0564	.0661	.0617	.0579	.0609	.0572	.5133	1.038
#2	.0204	.0577	.0653	.0616	.0571	.0563	.0542	.5038	1.013
Check ?	Chk Fail	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	.0150		.0500						
Range	30.44%		30.44%						

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0433	.9995	.0275	.1098	1.084	.0447	.4716	.1623	1.325
Stddev	.0003	.0366	.0003	.0014	.001	.0074	.0415	.0125	.018
%RSD	.5824	3.662	1.058	1.269	.0543	16.45	8.804	7.686	1.344
#1	.0434	.9736	.0278	.1108	1.084	.0499	.5010	.1535	1.312
#2	.0431	1.025	.0273	.1088	1.084	.0395	.4423	.1712	1.338
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: PQV Acquired: 1/11/2017 10:13:59 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1520	.5128	.2605	.5415	F 1.159	.2173	.0288	.0273	.5333
Stddev	.0152	.0009	.0079	.0105	.022	.0034	.0001	.0001	.0100
%RSD	10.000	.1756	3.018	1.933	1.933	1.551	.2471	.3957	1.879
#1	.1627	.5122	.2549	.5489	1.175	.2149	.0288	.0274	.5262
#2	.1412	.5135	.2660	.5341	1.143	.2197	.0289	.0273	.5404
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					.5000				
Range					30.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0288	.0574	.0555
Stddev	.0002	.0019	.0004
%RSD	.7965	3.297	.7814
#1	.0290	.0587	.0558
#2	.0287	.0560	.0552
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	12093.
Stddev	32.
%RSD	.26322
#1	12115.
#2	12070.

Sample Name: ICSAB Acquired: 1/11/2017 10:17:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4843	242.4	4.826	.4826	.2398	.2403	.4773	238.3	.4573
Stddev	.0012	.2	.008	.0179	.0004	.0006	.0220	.1	.0082
%RSD	.2497	.0678	.1686	3.710	.1565	.2607	4.614	.0500	1.800
#1	.4835	242.5	4.820	.4699	.2395	.2399	.4617	238.4	.4515
#2	.4852	242.3	4.832	.4952	.2400	.2408	.4929	238.2	.4632
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4607	.2294	.2458	.2370	.2316	93.53	93.09	.4799	24.68
Stddev	.0074	.0049	.0025	.0021	.0062	.06	.07	.0154	.03
%RSD	1.605	2.138	1.025	.9004	2.672	.0662	.0763	3.209	.1333
#1	.4555	.2259	.2440	.2385	.2272	93.58	93.04	.4690	24.65
#2	.4659	.2329	.2476	.2355	.2360	93.49	93.14	.4908	24.70
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4930	246.4	.2339	.4772	25.25	.4623	4.809	.4689	2.496
Stddev	.0006	.4	.0004	.0051	.01	.0070	.007	.0012	.046
%RSD	.1129	.1553	.1509	1.067	.0377	1.514	.1533	.2531	1.848
#1	.4933	246.7	.2336	.4736	25.24	.4573	4.803	.4697	2.464
#2	.4926	246.1	.2341	.4808	25.26	.4672	4.814	.4680	2.529
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: ICSAB Acquired: 1/11/2017 10:17:11 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4872	.4863	4.859	2.426	F 5.192	2.352	.4784	.4756	2.252
Stddev	.0009	.0022	.047	.025	.052	.055	.0013	.0012	.033
%RSD	.1904	.4477	.9666	1.009	1.009	2.337	.2622	.2523	1.465
#1	.4879	.4848	4.826	2.443	5.229	2.313	.4775	.4748	2.229
#2	.4866	.4879	4.892	2.409	5.155	2.391	.4792	.4765	2.275
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					2.500				
Range					20.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2405	.4598	.4796
Stddev	.0001	.0048	.0068
%RSD	.0561	1.045	1.425
#1	.2404	.4564	.4747
#2	.2406	.4632	.4844
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	12126.
Stddev	148.
%RSD	1.2202
#1	12230.
#2	12021.

Sample Name: WASH Acquired: 1/11/2017 10:20:18 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0014**	**.1827**	**.0192**	**.0035**	**.0032**	**.0063**	**-.0054**	**.0907**	**.0042**
Stddev	.0007	.0335	.0087	.0014	.0001	.0003	.0013	.0525	.0008
%RSD	51.78	18.31	45.22	38.72	2.816	4.045	24.76	57.90	18.49
#1	-.0009	.2064	.0254	.0025	.0031	.0065	-.0044	.1278	.0037
#2	-.0019	.1591	.0131	.0045	.0033	.0061	-.0063	.0536	.0048
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0029**	**.0066**	**.0126**	**.0042**	**-.0003**	**.1051**	**.1014**	**-.0308**	**-.0132**
Stddev	.0012	.0006	.0008	.0059	.0010	.0126	.0143	.0021	.0060
%RSD	42.32	8.838	6.372	140.7	336.1	11.98	14.11	6.758	45.60
#1	.0037	.0062	.0132	.0083	.0004	.1140	.1115	-.0294	-.0175
#2	.0020	.0070	.0121	.0000	-.0010	.0962	.0912	-.0323	-.0089
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0001**	**.0900**	**.0104**	**.0060**	**.0060**	**.0039**	**-.0388**	**.0243**	**.0111**
Stddev	.0005	.0538	.0004	.0034	.0031	.0035	.0160	.0182	.0381
%RSD	416.6	59.71	4.258	56.06	51.80	89.59	41.16	74.82	342.2
#1	.0002	.1281	.0107	.0036	.0083	.0014	-.0275	.0114	-.0158
#2	-.0005	.0520	.0101	.0084	.0038	.0063	-.0501	.0371	.0381
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: WASH Acquired: 1/11/2017 10:20:18 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0099**	**.0028**	**-.0192**	**.0095**	**.0203**	**.0127**	**.0031**	**.0016**	**.0135**
Stddev	.0169	.0000	.0179	.0061	.0131	.0015	.0000	.0006	.0364
%RSD	171.0	.4593	93.19	64.44	64.44	11.76	.9273	38.05	269.6
#1	-.0218	.0027	-.0318	.0138	.0295	.0137	.0031	.0021	.0392
#2	.0021	.0028	-.0065	.0052	.0110	.0116	.0030	.0012	-.0122
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**-.0010**	**.0034**	**.0022**
Stddev	.0014	.0013	.0009
%RSD	142.3	37.72	38.95
#1	-.0020	.0043	.0028
#2	.0000	.0025	.0016
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**12130.**
Stddev	215.
%RSD	1.7711
#1	12282.
#2	11979.

Sample Name: L34445-01 Acquired: 1/11/2017 10:23:29 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	12.24	-.0035	.0416	.0706	.0067	-.0067	18.33	.0065
Stddev	.0019	.10	.0340	.0003	.0001	.0001	.0153	.05	.0008
%RSD	294.4	.8182	963.4	.6066	.1594	2.113	229.4	.2513	12.67
#1	.0019	12.32	-.0276	.0417	.0707	.0068	-.0175	18.30	.0059
#2	-.0007	12.17	.0205	.0414	.0705	.0066	.0042	18.36	.0070

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060	.0109	.1244	.1209	.0193	6.814	6.798	-.0093	4.092
Stddev	.0003	.0001	.0037	.0053	.0000	.089	.103	.0068	.007
%RSD	5.011	1.152	2.981	4.377	.1172	1.309	1.516	72.79	.1725
#1	.0062	.0108	.1218	.1246	.0194	6.877	6.871	-.0045	4.087
#2	.0058	.0110	.1271	.1171	.0193	6.751	6.725	-.0141	4.097

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0103	6.429	.0650	.0137	3.338	.0353	1.197	.0323	4.816
Stddev	.0009	.067	.0009	.0030	.020	.0015	.043	.0068	.103
%RSD	9.173	1.044	1.446	22.18	.5921	4.216	3.630	21.12	2.150
#1	.0096	6.476	.0657	.0158	3.324	.0364	1.166	.0371	4.743
#2	.0109	6.382	.0643	.0115	3.352	.0343	1.227	.0275	4.889

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044	.0045	.0184	29.68	63.51	.0100	.0732	.3762	.0201
Stddev	.0005	.0000	.0029	.36	.77	.0063	.0004	.0057	.0021
%RSD	11.96	.3271	16.03	1.211	1.211	63.58	.5806	1.520	10.46
#1	.0040	.0045	.0163	29.93	64.05	.0055	.0729	.3803	.0186
#2	.0048	.0045	.0204	29.42	62.97	.0145	.0735	.3722	.0215

Sample Name: L34445-01 Acquired: 1/11/2017 10:23:29 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-6_7_9 (2- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0706	.1584	.1592
Stddev	.0032	.0018	.0029
%RSD	4.601	1.131	1.792
#1	.0683	.1571	.1571
#2	.0729	.1597	.1612

Int. Std.	Y_3710
Units	Cts/S
Avg	12478.
Stddev	244.
%RSD	1.9571
#1	12650.
#2	12305.

Sample Name: L34445-02 Acquired: 1/11/2017 10:26:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0027	1.732	-.0097	.0716	.0273	.0062	.0032	60.27	.0032
Stddev	.0027	.006	.0041	.0007	.0005	.0002	.0071	.46	.0000
%RSD	102.9	.3395	42.47	.9591	1.827	2.935	219.7	.7673	.2117
#1	-.0046	1.737	-.0126	.0721	.0270	.0063	.0083	59.94	.0032
#2	-.0007	1.728	-.0068	.0712	.0277	.0060	-.0018	60.60	.0032

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028	.0058	.0155	.0073	.0066	.9603	.9592	-.0202	3.298
Stddev	.0002	.0018	.0021	.0010	.0050	.0008	.0025	.0510	.011
%RSD	6.776	30.51	13.42	13.93	75.41	.0885	.2594	253.0	.3300
#1	.0027	.0046	.0140	.0080	.0101	.9597	.9575	-.0562	3.291
#2	.0029	.0071	.0169	.0066	.0031	.9609	.9610	.0159	3.306

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0071	3.391	.0388	.0053	2.385	.0036	.2349	.0172	2.321
Stddev	.0006	.022	.0000	.0034	.013	.0027	.0786	.0039	.060
%RSD	9.085	.6556	.1181	63.63	.5637	74.05	33.46	22.78	2.604
#1	.0066	3.375	.0388	.0029	2.376	.0055	.1793	.0200	2.278
#2	.0075	3.407	.0389	.0077	2.395	.0017	.2904	.0144	2.364

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0096	.0027	.0137	9.170	19.62	.0217	.0942	.0556	.0085
Stddev	.0138	.0004	.0014	.015	.03	.0006	.0011	.0000	.0025
%RSD	144.3	14.30	10.58	.1665	.1665	2.640	1.173	.0862	29.78
#1	-.0194	.0024	.0147	9.159	19.60	.0213	.0934	.0556	.0067
#2	.0002	.0029	.0127	9.181	19.65	.0221	.0950	.0556	.0102

Sample Name: L34445-02 Acquired: 1/11/2017 10:26:37 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-12 (2-4) Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0051	.0138	.0103
Stddev	.0036	.0006	.0006
%RSD	71.07	4.587	5.595
#1	.0026	.0133	.0107
#2	.0077	.0142	.0099

Int. Std.	Y_3710
Units	Cts/S
Avg	12371.
Stddev	217.
%RSD	1.7529
#1	12524.
#2	12217.

Sample Name: L34445-04 Acquired: 1/11/2017 10:32:56 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	20.35	.0027	.0790	.0894	.0070	.0021	14.06	.0060
Stddev	.0022	.80	.0218	.0058	.0036	.0002	.0147	.08	.0000
%RSD	361.1	3.927	820.6	7.365	3.977	2.272	704.3	.5491	.1642
#1	.0021	19.78	.0181	.0749	.0869	.0071	-.0083	14.01	.0060
#2	-.0009	20.91	-.0128	.0831	.0919	.0069	.0125	14.12	.0060

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054	.0063	.2637	.2490	.0229	10.18	10.09	-.0142	7.740
Stddev	.0004	.0019	.0083	.0126	.0003	.41	.44	.0199	.279
%RSD	7.849	30.00	3.154	5.067	1.481	4.035	4.357	139.6	3.598
#1	.0051	.0050	.2578	.2400	.0231	9.894	9.777	-.0002	7.543
#2	.0057	.0077	.2696	.2579	.0226	10.47	10.40	-.0283	7.937

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0181	7.962	.1649	.0098	2.018	.0328	1.848	.0290	1.864
Stddev	.0004	.086	.0096	.0005	.023	.0062	.122	.0119	.069
%RSD	2.290	1.082	5.826	4.605	1.138	18.84	6.587	40.90	3.678
#1	.0183	7.901	.1581	.0095	2.002	.0284	1.762	.0206	1.816
#2	.0178	8.023	.1717	.0101	2.034	.0372	1.934	.0374	1.913

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0055	.0059	-.0053	45.69	97.79	.0283	.0530	.5201	.0187
Stddev	.0092	.0003	.0119	1.44	3.09	.0018	.0009	.0269	.0002
%RSD	166.9	4.456	224.4	3.156	3.156	6.460	1.665	5.170	1.181
#1	-.0120	.0057	.0031	44.68	95.60	.0270	.0523	.5011	.0188
#2	.0010	.0061	-.0138	46.71	99.97	.0296	.0536	.5391	.0185

Sample Name: L34445-04 Acquired: 1/11/2017 10:32:56 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: TP-20 (1-4) Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0866	.1855	.1814
Stddev	.0044	.0078	.0035
%RSD	5.024	4.212	1.956
#1	.0836	.1800	.1788
#2	.0897	.1910	.1839

Int. Std.	Y_3710
Units	Cts/S
Avg	12699.
Stddev	225.
%RSD	1.7689
#1	12858.
#2	12540.

Sample Name: L34445-04DUP Acquired: 1/11/2017 10:36:05 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009	19.50	-.0157	.0755	.0857	.0070	.0130	14.73	.0055
Stddev	.0040	.03	.0139	.0029	.0010	.0002	.0099	.13	.0004
%RSD	454.9	.1675	88.68	3.839	1.121	3.124	76.09	.8875	6.672
#1	.0037	19.52	-.0058	.0734	.0850	.0071	.0060	14.64	.0053
#2	-.0020	19.48	-.0255	.0775	.0864	.0068	.0200	14.82	.0058

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045	.0071	.2415	.2368	.0205	9.776	9.687	-.0065	7.609
Stddev	.0001	.0033	.0048	.0018	.0062	.010	.001	.0186	.026
%RSD	3.109	46.34	1.998	.7737	30.29	.1018	.0049	285.4	.3470
#1	.0046	.0048	.2380	.2381	.0161	9.783	9.687	-.0197	7.590
#2	.0044	.0094	.2449	.2355	.0249	9.769	9.687	.0067	7.628

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0175	8.228	.1543	.0126	2.137	.0318	1.749	.0307	1.970
Stddev	.0011	.010	.0004	.0009	.015	.0015	.046	.0014	.021
%RSD	6.401	.1193	.2290	7.093	.6925	4.702	2.634	4.475	1.069
#1	.0183	8.221	.1545	.0120	2.127	.0308	1.716	.0317	1.955
#2	.0167	8.235	.1540	.0133	2.147	.0329	1.781	.0297	1.985

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0112	.0057	-.0062	44.19	94.57	.0044	.0544	.4917	.0330
Stddev	.0125	.0003	.0119	.10	.22	.0033	.0005	.0013	.0040
%RSD	111.9	4.436	191.3	.2344	.2344	76.59	.8737	.2696	12.09
#1	.0023	.0059	.0022	44.27	94.73	.0020	.0541	.4908	.0301
#2	.0200	.0055	-.0146	44.12	94.42	.0067	.0548	.4926	.0358

Sample Name: L34445-04DUP Acquired: 1/11/2017 10:36:05 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: NONE Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0831	.1734	.1683
Stddev	.0018	.0060	.0042
%RSD	2.119	3.447	2.499
#1	.0844	.1691	.1653
#2	.0819	.1776	.1713

Int. Std.	Y_3710
Units	Cts/S
Avg	12587.
Stddev	251.
%RSD	1.9961
#1	12764.
#2	12409.

Sample Name: L34674-01 Acquired: 1/11/2017 10:39:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	.8450	.0020	.0699	.0104	.0062	.0075	49.24	.0029
Stddev	.0026	.0068	.0093	.0005	.0000	.0001	.0048	.54	.0010
%RSD	404.0	.8068	463.8	.7202	.1323	2.357	63.79	1.098	34.35
#1	.0025	.8498	.0085	.0703	.0104	.0064	.0041	49.62	.0022
#2	-.0012	.8402	-.0046	.0696	.0104	.0061	.0108	48.86	.0036

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016	.0042	.0135	.0098	.0042	.4416	.4397	-.0217	5.655
Stddev	.0006	.0028	.0006	.0045	.0036	.0171	.0102	.0109	.030
%RSD	36.02	66.32	4.070	45.92	86.08	3.866	2.318	50.19	.5386
#1	.0012	.0062	.0139	.0066	.0016	.4537	.4470	-.0140	5.677
#2	.0020	.0022	.0132	.0130	.0067	.4295	.4325	-.0295	5.634

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060	7.692	.0368	.0080	3.930	.0065	.3341	.0175	4.448
Stddev	.0008	.049	.0005	.0011	.031	.0031	.0507	.0191	.117
%RSD	13.80	.6389	1.475	13.11	.7857	47.22	15.18	109.1	2.634
#1	.0066	7.727	.0372	.0088	3.952	.0086	.2983	.0310	4.365
#2	.0055	7.657	.0364	.0073	3.908	.0043	.3700	.0040	4.530

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0091	.0025	-.0108	6.412	13.72	.0242	.1197	.0254	-.0032
Stddev	.0047	.0001	.0128	.078	.17	.0025	.0009	.0010	.0162
%RSD	52.01	4.187	118.5	1.218	1.218	10.44	.7333	3.851	513.1
#1	-.0058	.0025	-.0017	6.468	13.84	.0224	.1203	.0247	.0083
#2	-.0124	.0024	-.0198	6.357	13.60	.0260	.1191	.0261	-.0146

Sample Name: L34674-01 Acquired: 1/11/2017 10:39:13 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-06GT (1.5 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0022	.0117	.0082
Stddev	.0015	.0015	.0000
%RSD	66.85	12.81	.0399
#1	.0012	.0128	.0082
#2	.0032	.0107	.0082

Int. Std.	Y_3710
Units	Cts/S
Avg	12460.
Stddev	98.
%RSD	.78808
#1	12529.
#2	12391.

Sample Name: L34674-02 Acquired: 1/11/2017 10:42:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0018**	**15.05**	**-.0218**	**.0911**	**.0462**	**.0066**	**.0085**	**19.30**	**.0026**
Stddev	.0007	.46	.0061	.0002	.0015	.0001	.0142	.27	.0014
%RSD	38.37	3.027	27.97	.2500	3.354	1.873	167.2	1.417	53.40
#1	-.0023	14.73	-.0175	.0912	.0451	.0067	-.0016	19.11	.0035
#2	-.0013	15.37	-.0261	.0909	.0473	.0065	.0186	19.49	.0016

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0029**	**.0068**	**.0281**	**.0209**	**.0087**	**7.540**	**7.491**	**-.0030**	**9.835**
Stddev	.0006	.0009	.0013	.0046	.0032	.172	.184	.0011	.203
%RSD	21.86	13.28	4.751	22.16	36.51	2.276	2.458	38.67	2.059
#1	.0034	.0062	.0290	.0177	.0110	7.419	7.361	-.0021	9.692
#2	.0025	.0075	.0271	.0242	.0065	7.662	7.621	-.0038	9.978

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0147**	**7.422**	**.2646**	**.0089**	**2.066**	**.0086**	**.3914**	**.0234**	**2.403**
Stddev	.0003	.079	.0104	.0016	.030	.0040	.0024	.0001	.052
%RSD	2.037	1.061	3.949	18.25	1.462	45.85	.6163	.2732	2.173
#1	.0149	7.366	.2572	.0078	2.044	.0058	.3931	.0234	2.366
#2	.0144	7.477	.2720	.0101	2.087	.0114	.3897	.0233	2.440

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0055**	**.0049**	**-.0170**	**34.74**	**74.35**	**.0058**	**.0627**	**.3703**	**.0265**
Stddev	.0134	.0004	.0106	.91	1.94	.0020	.0013	.0174	.0001
%RSD	246.1	8.375	62.18	2.609	2.609	34.33	2.123	4.705	.3581
#1	.0149	.0047	-.0245	34.10	72.98	.0044	.0618	.3580	.0266
#2	-.0040	.0052	-.0095	35.38	75.72	.0072	.0637	.3826	.0265

Sample Name: L34674-02 Acquired: 1/11/2017 10:42:24 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-07GT (0-4 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0207	.0314	.0293
Stddev	.0005	.0019	.0021
%RSD	2.619	5.921	7.301
#1	.0203	.0300	.0278
#2	.0211	.0327	.0308

Int. Std.	Y_3710
Units	Cts/S
Avg	12584.
Stddev	224.
%RSD	1.7790
#1	12742.
#2	12426.

Sample Name: L34674-03 Acquired: 1/11/2017 10:45:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0029	3.900	.0044	.0496	.0566	.0063	.0074	28.07	.0039
Stddev	.0017	.064	.0031	.0033	.0011	.0000	.0067	.87	.0003
%RSD	57.64	1.628	71.03	6.589	1.950	.4764	91.11	3.116	7.941
#1	-.0041	3.945	.0022	.0519	.0574	.0063	.0026	28.69	.0036
#2	-.0017	3.855	.0066	.0473	.0558	.0063	.0121	27.45	.0041

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030	.0077	.0290	.0256	.0078	2.001	1.992	.0241	8.999
Stddev	.0002	.0009	.0017	.0011	.0064	.012	.011	.0072	.336
%RSD	7.377	11.16	5.978	4.334	81.99	.5979	.5246	29.99	3.735
#1	.0031	.0083	.0278	.0248	.0122	2.009	2.000	.0190	9.236
#2	.0028	.0071	.0302	.0264	.0033	1.992	1.985	.0292	8.761

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0433	6.841	.1045	.0503	6.994	.0149	.6271	.0053	9.613
Stddev	.0012	.218	.0019	.0005	.174	.0031	.0081	.0053	.024
%RSD	2.821	3.180	1.776	.9477	2.484	20.98	1.290	100.9	.2442
#1	.0441	6.995	.1058	.0507	7.117	.0127	.6328	.0015	9.629
#2	.0424	6.687	.1032	.0500	6.871	.0171	.6214	.0091	9.596

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0027	.0030	.0152	22.83	48.87	.0209	.1337	.1350	.0018
Stddev	.0032	.0002	.0104	.38	.81	.0032	.0030	.0014	.0174
%RSD	122.2	7.078	68.20	1.665	1.665	15.07	2.271	1.064	971.9
#1	-.0049	.0032	.0079	23.10	49.44	.0187	.1358	.1360	-.0105
#2	-.0004	.0029	.0226	22.57	48.29	.0231	.1315	.1340	.0141

Sample Name: L34674-03 Acquired: 1/11/2017 10:45:33 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0142	.0836	.0842
Stddev	.0040	.0020	.0013
%RSD	28.16	2.398	1.544
#1	.0114	.0850	.0851
#2	.0170	.0822	.0833

Int. Std.	Y_3710
Units	Cts/S
Avg	12323.
Stddev	116.
%RSD	.93968
#1	12241.
#2	12405.

Sample Name: L34674-04 Acquired: 1/11/2017 10:48:43 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0008	1.134	-.0149	.0290	.0565	.0062	-.0162	26.15	.0031
Stddev	.0011	.021	.0063	.0014	.0005	.0001	.0012	.20	.0003
%RSD	135.4	1.823	42.11	4.747	.9427	1.205	7.668	.7580	10.56
#1	-.0000	1.119	-.0194	.0300	.0561	.0063	-.0171	26.01	.0028
#2	-.0016	1.148	-.0105	.0280	.0569	.0062	-.0153	26.29	.0033

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032	.0059	.0143	.0071	.0021	.5320	.5312	-.0318	3.225
Stddev	.0000	.0000	.0004	.0001	.0001	.0142	.0198	.0032	.016
%RSD	.9871	.6387	2.592	1.813	6.010	2.664	3.728	10.11	.4936
#1	.0032	.0058	.0145	.0070	.0020	.5220	.5172	-.0341	3.214
#2	.0033	.0059	.0140	.0072	.0022	.5420	.5452	-.0296	3.236

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0216	4.649	.1114	.0331	5.535	.0047	.1813	.0190	9.426
Stddev	.0000	.067	.0013	.0006	.072	.0045	.0379	.0038	.300
%RSD	.1306	1.449	1.156	1.765	1.308	94.42	20.89	20.01	3.184
#1	.0216	4.602	.1104	.0335	5.484	.0016	.2081	.0217	9.214
#2	.0216	4.697	.1123	.0327	5.586	.0079	.1545	.0163	9.638

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0074	.0025	.0229	8.382	17.94	.0000	.0954	.0355	.0139
Stddev	.0084	.0001	.0098	.136	.29	.0068	.0015	.0018	.0248
%RSD	114.0	2.550	42.81	1.622	1.622	29040.	1.521	5.001	177.8
#1	.0014	.0026	.0160	8.286	17.73	-.0048	.0944	.0343	-.0036
#2	.0134	.0025	.0299	8.478	18.14	.0049	.0964	.0368	.0315

Sample Name: L34674-04 Acquired: 1/11/2017 10:48:43 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (18- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0054	.0822	.0799
Stddev	.0022	.0035	.0025
%RSD	39.96	4.289	3.100
#1	.0039	.0797	.0781
#2	.0069	.0847	.0816

Int. Std.	Y_3710
Units	Cts/S
Avg	12630.
Stddev	307.
%RSD	2.4329
#1	12847.
#2	12412.

Sample Name: L34674-05 Acquired: 1/11/2017 10:51:55 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006	.5491	-.0077	.0502	.0347	.0062	.0057	47.87	.0046
Stddev	.0005	.0089	.0035	.0030	.0001	.0001	.0124	.20	.0004
%RSD	83.73	1.619	45.16	5.909	.2790	1.605	218.1	.4266	8.147
#1	.0002	.5428	-.0053	.0481	.0346	.0063	.0144	48.02	.0049
#2	.0009	.5554	-.0102	.0523	.0347	.0061	-.0031	47.73	.0043

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026	.0066	.0321	.0256	.0080	.2777	.2766	.0085	4.417
Stddev	.0002	.0003	.0003	.0030	.0028	.0023	.0037	.0021	.011
%RSD	8.304	3.955	.9320	11.62	35.23	.8359	1.351	24.39	.2366
#1	.0027	.0068	.0319	.0235	.0100	.2794	.2740	.0100	4.424
#2	.0024	.0064	.0323	.0277	.0060	.2761	.2792	.0070	4.409

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060	7.979	.0516	.0190	4.414	.0221	.4117	.0127	6.060
Stddev	.0002	.029	.0002	.0009	.017	.0056	.0166	.0147	.121
%RSD	3.115	.3617	.2987	4.798	.3795	25.45	4.029	116.1	1.999
#1	.0058	7.999	.0517	.0197	4.402	.0181	.4235	.0023	5.975
#2	.0061	7.959	.0515	.0184	4.426	.0261	.4000	.0231	6.146

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0023	.0024	.0030	5.002	10.71	.0178	.1499	.0241	.0096
Stddev	.0069	.0002	.0097	.014	.03	.0135	.0005	.0008	.0134
%RSD	294.2	6.245	325.9	.2755	.2755	75.91	.3123	3.341	140.3
#1	-.0072	.0025	-.0039	4.993	10.68	.0273	.1495	.0236	.0191
#2	.0025	.0023	.0098	5.012	10.73	.0082	.1502	.0247	.0001

Sample Name: L34674-05 Acquired: 1/11/2017 10:51:55 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-12GT (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0126	.0249	.0231
Stddev	.0001	.0009	.0008
%RSD	1.067	3.708	3.478
#1	.0125	.0243	.0226
#2	.0127	.0256	.0237

Int. Std.	Y_3710
Units	Cts/S
Avg	12589.
Stddev	187.
%RSD	1.4872
#1	12721.
#2	12456.

Sample Name: CCV Acquired: 1/11/2017 10:55:07 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4711	.9904	1.952	.9795	.9545	.9871	.9576	49.42	.9647
Stddev	.0125	.0054	.060	.0226	.0174	.0157	.0073	.57	.0201
%RSD	2.660	.5461	3.064	2.312	1.819	1.591	.7658	1.161	2.082
#1	.4622	.9866	1.910	.9635	.9422	.9760	.9525	49.01	.9505
#2	.4799	.9943	1.994	.9956	.9667	.9982	.9628	49.82	.9789
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9554	.9465	.9722	.9539	.9547	.9787	.9824	.9423	9.506
Stddev	.0236	.0198	.0214	.0143	.0224	.0155	.0139	.0097	.148
%RSD	2.474	2.093	2.206	1.498	2.343	1.580	1.412	1.029	1.555
#1	.9387	.9325	.9570	.9438	.9389	.9678	.9726	.9492	9.401
#2	.9721	.9605	.9873	.9640	.9705	.9897	.9922	.9355	9.610
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9467	49.45	.9574	1.004	49.43	.9952	2.536	1.898	24.68
Stddev	.0186	.46	.0140	.015	.84	.0242	.081	.043	.60
%RSD	1.969	.9204	1.460	1.498	1.697	2.434	3.192	2.260	2.424
#1	.9335	49.13	.9475	.9933	48.84	.9781	2.479	1.867	24.26
#2	.9599	49.78	.9673	1.015	50.03	1.012	2.593	1.928	25.10
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 10:55:07 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.000	.9668	1.954	9.436	F 20.19	1.010	.9547	.9734	1.906
Stddev	.030	.0150	.034	.135	.29	.012	.0168	.0173	.058
%RSD	1.521	1.553	1.726	1.435	1.435	1.199	1.764	1.778	3.032
#1	1.978	.9562	1.930	9.341	19.99	1.001	.9428	.9612	1.865
#2	2.021	.9774	1.978	9.532	20.40	1.019	.9666	.9857	1.946
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.9846	.9580	.9605
Stddev	.0107	.0200	.0235
%RSD	1.088	2.086	2.450
#1	.9771	.9439	.9438
#2	.9922	.9722	.9771
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	12316.
Stddev	319.
%RSD	2.5893
#1	12541.
#2	12090.

Sample Name: L34674-06 Acquired: 1/11/2017 11:01:28 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018	.3960	-.0015	.0715	.0518	.0063	-.0024	51.95	.0047
Stddev	.0015	.0069	.0045	.0006	.0013	.0002	.0060	1.12	.0004
%RSD	81.92	1.753	294.4	.8674	2.519	3.538	254.8	2.157	7.475
#1	.0008	.4009	-.0048	.0719	.0509	.0065	-.0066	51.15	.0045
#2	.0029	.3911	.0017	.0710	.0528	.0061	.0019	52.74	.0050

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030	.0082	.0184	.0120	.0062	.1783	.1772	-.0176	6.539
Stddev	.0000	.0007	.0011	.0006	.0010	.0092	.0021	.0119	.191
%RSD	1.130	8.424	5.883	4.761	15.63	5.156	1.171	67.56	2.914
#1	.0030	.0086	.0176	.0116	.0056	.1718	.1757	-.0092	6.404
#2	.0030	.0077	.0191	.0124	.0069	.1848	.1787	-.0259	6.673

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0289	9.453	.1724	.0333	6.167	.0124	.2398	.0102	17.85
Stddev	.0012	.209	.0057	.0003	.146	.0036	.0105	.0060	.86
%RSD	4.088	2.206	3.311	.8963	2.374	29.16	4.382	58.39	4.842
#1	.0280	9.306	.1684	.0331	6.063	.0099	.2323	.0145	17.23
#2	.0297	9.601	.1765	.0335	6.270	.0150	.2472	.0060	18.46

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0060	.0026	.0238	7.219	15.45	.0074	.2202	.0141	.0020
Stddev	.0302	.0001	.0215	.173	.37	.0002	.0060	.0010	.0010
%RSD	504.4	3.672	90.14	2.392	2.392	3.023	2.737	6.845	50.68
#1	-.0273	.0026	.0390	7.097	15.19	.0076	.2160	.0134	.0027
#2	.0154	.0025	.0086	7.341	15.71	.0072	.2245	.0148	.0013

Sample Name: L34674-06 Acquired: 1/11/2017 11:01:28 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-13AL (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0060	.0577	.0561
Stddev	.0021	.0043	.0022
%RSD	34.89	7.375	3.862
#1	.0046	.0547	.0546
#2	.0075	.0607	.0576

Int. Std.	Y_3710
Units	Cts/S
Avg	12396.
Stddev	523.
%RSD	4.2156
#1	12765.
#2	12026.

Sample Name: L34674-07 Acquired: 1/11/2017 11:04:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0024**	**.4628**	**-.0261**	**.0828**	**.0093**	**.0062**	**-.0145**	**19.96**	**.0040**
Stddev	.0011	.0251	.0214	.0043	.0002	.0000	.0010	.38	.0004
%RSD	46.99	5.429	82.07	5.149	1.675	.1510	7.161	1.893	10.21
#1	-.0016	.4805	-.0110	.0858	.0094	.0062	-.0138	20.23	.0042
#2	-.0032	.4450	-.0413	.0797	.0092	.0063	-.0153	19.69	.0037

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0020**	**.0075**	**.0207**	**.0103**	**.0014**	**.2701**	**.2701**	**-.0266**	**1.782**
Stddev	.0009	.0036	.0005	.0028	.0033	.0017	.0113	.0007	.045
%RSD	46.68	47.67	2.202	27.63	228.9	.6177	4.169	2.761	2.508
#1	.0014	.0049	.0204	.0123	.0037	.2712	.2781	-.0261	1.814
#2	.0027	.0100	.0210	.0083	-.0009	.2689	.2622	-.0271	1.751

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0234**	**22.92**	**.0375**	**.0215**	**7.579**	**-.0001**	**.1940**	**.0094**	**2.661**
Stddev	.0008	.36	.0016	.0019	.088	.0031	.0213	.0066	.080
%RSD	3.345	1.555	4.158	9.077	1.165	2130.	10.98	70.70	2.989
#1	.0240	23.17	.0364	.0201	7.642	.0020	.2091	.0141	2.604
#2	.0229	22.67	.0386	.0229	7.517	-.0023	.1790	.0047	2.717

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0092**	**.0024**	**.0037**	**17.10**	**36.58**	**.0041**	**.1022**	**.0175**	**.0246**
Stddev	.0049	.0002	.0267	.14	.31	.0010	.0012	.0001	.0033
%RSD	53.45	7.225	726.2	.8401	.8401	25.30	1.212	.3950	13.47
#1	-.0057	.0025	-.0152	17.20	36.80	.0034	.1031	.0175	.0270
#2	-.0127	.0023	.0226	16.99	36.37	.0049	.1013	.0176	.0223

Sample Name: L34674-07 Acquired: 1/11/2017 11:04:39 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (0-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0078	.0122	.0099
Stddev	.0016	.0006	.0014
%RSD	20.04	4.627	14.24
#1	.0067	.0118	.0089
#2	.0089	.0126	.0109

Int. Std.	Y_3710
Units	Cts/S
Avg	12458.
Stddev	78.
%RSD	.62561
#1	12513.
#2	12403.

Sample Name: L34674-08 Acquired: 1/11/2017 11:07:51 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0018**	**.5429**	**-.0158**	**.0368**	**.0329**	**.0062**	**-.0104**	**43.11**	**.0033**
Stddev	.0035	.0333	.0057	.0029	.0005	.0000	.0035	.17	.0006
%RSD	199.1	6.129	36.32	7.882	1.392	.7486	33.73	.4052	17.36
#1	-.0007	.5193	-.0199	.0389	.0326	.0063	-.0079	42.99	.0029
#2	.0043	.5664	-.0118	.0348	.0332	.0062	-.0128	43.24	.0038

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0035**	**.0047**	**.0150**	**.0100**	**-.0011**	**.3049**	**.3102**	**-.0129**	**3.661**
Stddev	.0001	.0022	.0003	.0033	.0031	.0201	.0185	.0025	.038
%RSD	1.452	46.07	1.889	33.25	282.1	6.596	5.972	19.20	1.040
#1	.0036	.0063	.0152	.0123	-.0033	.2907	.2971	-.0147	3.634
#2	.0035	.0032	.0148	.0076	.0011	.3191	.3233	-.0111	3.688

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0181**	**15.24**	**.0395**	**.0081**	**13.14**	**.0021**	**.1630**	**.0192**	**16.09**
Stddev	.0006	.03	.0006	.0025	.08	.0024	.0152	.0099	.17
%RSD	3.414	.1723	1.447	30.81	.5836	112.8	9.309	51.67	1.038
#1	.0186	15.22	.0390	.0099	13.09	.0004	.1522	.0122	15.97
#2	.0177	15.26	.0399	.0064	13.20	.0038	.1737	.0263	16.21

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0193**	**.0025**	**.0373**	**10.29**	**22.03**	**.0121**	**.1031**	**.0235**	**.0112**
Stddev	.0185	.0004	.0348	.02	.04	.0090	.0009	.0027	.0012
%RSD	96.02	16.73	93.14	.1865	.1865	73.88	.8637	11.53	10.90
#1	-.0324	.0028	.0127	10.28	22.00	.0058	.1025	.0216	.0120
#2	-.0062	.0022	.0619	10.31	22.06	.0184	.1037	.0254	.0103

Sample Name: L34674-08 Acquired: 1/11/2017 11:07:51 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-14AL (15- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0002	.0119	.0100
Stddev	.0011	.0001	.0006
%RSD	643.4	1.127	6.505
#1	-.0006	.0120	.0095
#2	.0010	.0118	.0104

Int. Std.	Y_3710
Units	Cts/S
Avg	12567.
Stddev	179.
%RSD	1.4275
#1	12693.
#2	12440.

Sample Name: L34674-09 Acquired: 1/11/2017 11:11:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001	2.267	-.0012	.0885	.0314	.0062	-.0026	25.68	.0032
Stddev	.0017	.010	.0035	.0021	.0003	.0003	.0048	.14	.0003
%RSD	1984.	.4551	279.3	2.349	.9735	4.910	183.1	.5408	10.25
#1	-.0011	2.260	.0012	.0871	.0312	.0064	.0008	25.58	.0035
#2	.0013	2.275	-.0037	.0900	.0317	.0060	-.0061	25.78	.0030

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027	.0098	.0537	.0503	.0056	1.382	1.379	-.0077	3.177
Stddev	.0003	.0013	.0018	.0013	.0067	.004	.008	.0025	.047
%RSD	11.91	13.30	3.365	2.655	119.3	.2798	.6035	32.63	1.485
#1	.0029	.0107	.0524	.0512	.0009	1.380	1.373	-.0095	3.144
#2	.0024	.0089	.0550	.0493	.0103	1.385	1.385	-.0059	3.210

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0303	5.021	.0643	.0104	11.55	.0203	.3005	.0106	3.780
Stddev	.0009	.047	.0004	.0003	.13	.0076	.0307	.0028	.134
%RSD	3.136	.9446	.6594	3.314	1.114	37.38	10.23	26.12	3.546
#1	.0296	4.988	.0640	.0101	11.46	.0257	.2788	.0087	3.685
#2	.0309	5.055	.0646	.0106	11.64	.0150	.3223	.0126	3.874

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0032	.0026	-.0247	14.44	30.91	.0169	.0895	.0646	.0283
Stddev	.0048	.0000	.0366	.13	.27	.0185	.0011	.0008	.0176
%RSD	149.3	.5209	148.1	.8806	.8806	109.5	1.179	1.298	62.20
#1	-.0066	.0026	.0012	14.35	30.72	.0301	.0887	.0640	.0407
#2	.0002	.0026	-.0506	14.53	31.10	.0038	.0902	.0652	.0158

Sample Name: L34674-09 Acquired: 1/11/2017 11:11:03 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (0-2 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0082	.0422	.0403
Stddev	.0002	.0011	.0017
%RSD	2.532	2.693	4.307
#1	.0084	.0414	.0391
#2	.0081	.0430	.0415

Int. Std.	Y_3710
Units	Cts/S
Avg	12583.
Stddev	409.
%RSD	3.2495
#1	12872.
#2	12294.

Sample Name: L34674-10 Acquired: 1/11/2017 11:14:14 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0016	1.299	-.0057	.1761	.0307	.0061	.0169	25.92	.0034
Stddev	.0016	.009	.0178	.0013	.0002	.0002	.0021	.17	.0004
%RSD	102.0	.6700	312.4	.7452	.5679	2.824	12.26	.6371	10.31
#1	-.0027	1.305	-.0183	.1771	.0308	.0062	.0154	26.03	.0032
#2	-.0004	1.293	.0069	.1752	.0306	.0059	.0184	25.80	.0037

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027	.0097	.0364	.0313	-.0013	.7655	.7654	-.0177	3.749
Stddev	.0001	.0017	.0000	.0047	.0029	.0048	.0022	.0196	.030
%RSD	4.775	17.10	.0838	15.16	214.9	.6333	.2809	110.9	.7927
#1	.0028	.0086	.0364	.0346	.0007	.7689	.7669	-.0316	3.770
#2	.0026	.0109	.0364	.0279	-.0034	.7621	.7639	-.0038	3.728

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0338	4.768	.0868	.0201	10.22	.0237	.2890	.0165	6.155
Stddev	.0005	.046	.0007	.0027	.04	.0005	.0034	.0058	.154
%RSD	1.448	.9657	.7747	13.47	.3876	2.161	1.168	35.50	2.504
#1	.0342	4.736	.0873	.0220	10.25	.0234	.2866	.0123	6.046
#2	.0335	4.801	.0863	.0182	10.19	.0241	.2914	.0206	6.264

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0166	.0025	-.0037	10.61	22.71	.0083	.0770	.0384	.0017
Stddev	.0114	.0001	.0293	.01	.02	.0021	.0000	.0016	.0139
%RSD	68.95	4.774	787.9	.0851	.0851	24.98	.0430	4.098	792.9
#1	-.0247	.0026	-.0244	10.62	22.72	.0068	.0770	.0395	-.0081
#2	-.0085	.0024	.0170	10.60	22.69	.0098	.0769	.0373	.0115

Sample Name: L34674-10 Acquired: 1/11/2017 11:14:14 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-15AL (25- Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0017	.0503	.0493
Stddev	.0048	.0018	.0007
%RSD	286.4	3.510	1.391
#1	-.0017	.0490	.0488
#2	.0051	.0515	.0497

Int. Std.	Y_3710
Units	Cts/S
Avg	12332.
Stddev	139.
%RSD	1.1283
#1	12430.
#2	12233.

Sample Name: L34674-14 Acquired: 1/11/2017 11:17:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0008	4.440	-.0152	.0602	.0564	.0062	.0015	26.98	.0040
Stddev	.0033	.058	.0014	.0003	.0002	.0000	.0019	.08	.0002
%RSD	401.4	1.303	9.028	.4529	.3666	.1716	127.4	.2936	5.657
#1	.0015	4.481	-.0143	.0600	.0565	.0062	.0001	27.04	.0038
#2	-.0032	4.399	-.0162	.0604	.0562	.0062	.0029	26.93	.0042

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033	.0075	.0372	.0324	.0036	2.396	2.374	-.0086	8.571
Stddev	.0000	.0002	.0010	.0036	.0003	.029	.023	.0021	.070
%RSD	.6952	2.642	2.640	11.27	9.629	1.204	.9830	24.54	.8177
#1	.0033	.0076	.0379	.0349	.0038	2.416	2.391	-.0101	8.620
#2	.0033	.0073	.0365	.0298	.0033	2.376	2.358	-.0071	8.521

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0663	6.554	.1430	.0726	7.051	.0146	.4926	.0136	9.389
Stddev	.0009	.043	.0001	.0016	.022	.0027	.0028	.0178	.208
%RSD	1.326	.6504	.0592	2.220	.3108	18.48	.5683	130.7	2.216
#1	.0669	6.584	.1430	.0737	7.066	.0166	.4906	.0262	9.242
#2	.0657	6.524	.1429	.0714	7.035	.0127	.4945	.0010	9.536

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0055	.0030	.0112	19.96	42.72	.0205	.1247	.1429	.0053
Stddev	.0114	.0000	.0015	.16	.35	.0140	.0001	.0015	.0070
%RSD	206.5	.9420	13.09	.8224	.8224	68.24	.0555	1.075	132.7
#1	-.0136	.0030	.0122	20.08	42.96	.0303	.1247	.1418	.0003
#2	.0026	.0030	.0101	19.84	42.47	.0106	.1246	.1440	.0102

Sample Name: L34674-14 Acquired: 1/11/2017 11:17:25 Type: Unk
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: SB-09GT (8-1 Custom ID2: 1 Custom ID3:
Comment: WG416011

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0131	.1349	.1337
Stddev	.0007	.0023	.0022
%RSD	5.651	1.669	1.673
#1	.0126	.1333	.1321
#2	.0136	.1365	.1353

Int. Std.	Y_3710
Units	Cts/S
Avg	12559.
Stddev	221.
%RSD	1.7567
#1	12715.
#2	12403.

Sample Name: CCV Acquired: 1/11/2017 11:20:35 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4778	1.009	1.946	.9856	.9700	.9954	.9691	49.97	.9748
Stddev	.0043	.011	.033	.0156	.0028	.0027	.0226	.10	.0125
%RSD	.8973	1.096	1.692	1.588	.2886	.2674	2.337	.1995	1.280
#1	.4808	1.001	1.923	.9745	.9680	.9935	.9531	49.90	.9660
#2	.4747	1.016	1.969	.9967	.9719	.9973	.9852	50.04	.9836
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9701	.9537	.9821	.9670	.9651	.9999	.9952	.9436	9.717
Stddev	.0138	.0130	.0074	.0043	.0015	.0116	.0027	.0400	.007
%RSD	1.425	1.361	.7581	.4429	.1537	1.162	.2745	4.238	.0770
#1	.9604	.9446	.9768	.9640	.9641	.9917	.9971	.9719	9.712
#2	.9799	.9629	.9873	.9701	.9662	1.008	.9933	.9153	9.723
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9661	49.65	.9743	1.014	49.81	1.007	2.525	1.894	25.18
Stddev	.0016	.33	.0012	.013	.11	.013	.003	.021	.31
%RSD	.1678	.6637	.1256	1.241	.2282	1.330	.0983	1.101	1.235
#1	.9650	49.41	.9734	1.005	49.73	.9975	2.527	1.879	24.96
#2	.9673	49.88	.9751	1.023	49.89	1.016	2.523	1.909	25.40
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Sample Name: CCV Acquired: 1/11/2017 11:20:35 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.016**	**.9781**	**1.981**	**9.551**	F **20.44**	**1.004**	**.9674**	**.9841**	**1.962**
Stddev	.015	.0025	.037	.016	.03	.028	.0024	.0024	.006
%RSD	.7582	.2597	1.880	.1660	.1660	2.828	.2497	.2484	.3188
#1	2.005	.9763	1.954	9.563	20.46	.9837	.9657	.9824	1.958
#2	2.027	.9799	2.007	9.540	20.42	1.024	.9691	.9859	1.966
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					10.00				
Range					10.44%				

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.9958**	**.9709**	**.9662**
Stddev	.0071	.0169	.0136
%RSD	.7139	1.739	1.409
#1	.9908	.9589	.9566
#2	1.001	.9828	.9758
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_3710
Units	Cts/S
Avg	**12326.**
Stddev	193.
%RSD	1.5622
#1	12462.
#2	12189.

Sample Name: CCB Acquired: 1/11/2017 11:23:43 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3961	As1890	B_2089	Ba4554	Be3130	Bi2230	Ca3158	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002	.0154	-.0002	.0060	.0041	.0071	-.0081	-.0410	.0046
Stddev	.0003	.0036	.0125	.0042	.0002	.0000	.0104	.0067	.0005
%RSD	108.1	23.29	6966.	70.57	4.078	.6248	128.7	16.27	11.76
#1	.0004	.0179	.0087	.0030	.0043	.0071	-.0007	-.0363	.0050
#2	.0001	.0128	-.0090	.0089	.0040	.0070	-.0154	-.0458	.0042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Cd2265	Co2286	Cr2055	Cr2677	Cu3247	Fe2404	Fe2599	Ga2943	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035	.0058	.0100	.0073	-.0018	-.0016	.0084	.0071	-.0469
Stddev	.0004	.0029	.0025	.0006	.0026	.0098	.0036	.0099	.0064
%RSD	11.25	49.71	25.07	8.892	144.5	602.0	42.78	140.9	13.56
#1	.0033	.0038	.0082	.0068	-.0036	.0053	.0109	.0141	-.0424
#2	.0038	.0078	.0118	.0077	.0000	-.0086	.0058	.0000	-.0514
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Elem	Li6707	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203	S_1820
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005	-.0484	.0018	.0089	.0543	.0028	-.0538	.0246	.0549
Stddev	.0006	.0321	.0006	.0010	.0082	.0012	.0485	.0072	.0414
%RSD	123.7	66.34	32.18	11.05	15.16	41.40	90.09	29.16	75.44
#1	.0009	-.0257	.0022	.0096	.0601	.0037	-.0881	.0296	.0256
#2	.0001	-.0712	.0014	.0082	.0485	.0020	-.0195	.0195	.0841
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Sample Name: CCB Acquired: 1/11/2017 11:23:43 Type: QC
Method: 6010B(v38) Mode: CONC Corr. Factor: 1.000000
User: admin Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Sc3613	Se1960	Si2516	SiO2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0220	.0034	-.0176	.0223	.0477	.0119	.0036	.0024	.0168
Stddev	.0100	.0002	.0255	.0001	.0003	.0098	.0002	.0003	.0193
%RSD	45.44	5.078	144.6	.6386	.6386	82.61	5.717	10.85	114.6
#1	-.0149	.0033	-.0356	.0222	.0475	.0188	.0037	.0026	.0305
#2	-.0291	.0035	.0004	.0224	.0480	.0049	.0034	.0022	.0032
Check ?	Chk Pass	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	.0032	.0072	.0033
Stddev	.0006	.0001	.0017
%RSD	18.22	1.626	51.04
#1	.0028	.0073	.0021
#2	.0036	.0071	.0045
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_3710
Units	Cts/S
Avg	12314.
Stddev	49.
%RSD	.40077
#1	12349.
#2	12279.

CALIBRATION REAGENTS

6010B/200.7 Reagent Sheet

1% Calibration Standards			10% Calibration Standards		
CLPSTD1:	**	SCN	CLPTSTD1:	**	SCN
CLPSTD2:	II161228-1	SCN	CLPTSTD2:	II161229-2	SCN
CLPSTD3:	II161221-3	SCN	CLPTSTD3:	II161227-2	SCN

Yttrium (Internal Standard) = PCN51497 EXP: 10/31/2017

**=CALSTD1 is a 2X dilution on CALSTD2 using either 1% or 10% Blank as the dilutent.

Blank Solutions:

Nitric acid:	52458	PCN	Nitric acid:	52458	PCN
Hydrochloric acid:	52395	PCN	Hydrochloric acid:	52395	PCN

VERIFIED BY: AEB 1/11/17

NH3-KCL

QC List Type: QC-RFA-NH3-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: icv/b-ccv/b-dup-as
Group ID: WC-G-RFA-NH3-KCL
Method Ref: M350.1
SOP Ref: SOPWC008

WG415949

ACZ Laboratories, Inc

Instrument ID: FIA2
Analyst: gl
ACZ Dept: 37
Create Date: 01/10/2017 12:05
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	PSolid	TSolid	Analysis Date	NNH3KCL	Ammonia (mg/Kg)	Instrument Dilution Factor (units)	Prep Dilution Factor (units)	Dilution
1	WG415949ICV	WI170103-8	So		1				☑				1
2	WG415949ICB	NONE			1				☑				1
3	WG415949LFB	WI161026-1			1				☑				1
4	WG415879PBS	NONE			10				☑				10
5	L34445-01	TP-6_7_9 (2-5)			10	88.3			☑				10
6	L34445-01DUP	NONE			10				☑				10
7	L34445-02	TP-12 (2-4)			10	91.4			☑				10
8	L34445-02AS	WI161026-1			1				☑				10
9	L34445-03	TP-15_16 (2-13)			10	85.8			☑				10
10	L34445-04	TP-20 (1-4)			10	91.3			☑				10
11	L34674-01	SB-06GT (1.5-10)			10	86			☑				10
12	L34674-02	SB-07GT (0-4)			10	88.3			☑				10
13	WG415949CCV1	WI161031-9			1				☑				1
14	WG415949CCB1	NONE			1				☑				1
15	L34674-03	SB-09GT (8-12)			10	87.5			☑				10
16	L34674-04	SB-09GT (18-22)			10	83.9			☑				10
17	L34674-05	SB-12GT (0-27)			10	79.8			☑				10
18	L34674-06	SB-13AL (0-25)			10	90.1			☑				10
19	L34674-07	SB-14AL (0-15)			10	83.6			☑				10
20	L34674-07DUP	NONE			1				☑				10
21	L34674-08	SB-14AL (15-35)			10	82.7			☑				10
22	L34674-08AS	WI161026-1			1				☑				10

Report Comments:

Internal Comments

AREV: gl 1/11/17
Initials, Date

SREV: BSu 1/12/17
Initials, Date

ACZ Laboratories, Inc.
WET CHEM INSTRUMENT DATA REVIEW CHECKLIST

AREV: 91
Date: 1-11-17

SREV: BJ
Date: 1/12/17

Instrument ID: FIA2

Work Group: 415949
Sample Type: NH3-KCl
Analysis Date: 1-10-17
Analyst: 91

	Yes	No	N/A
1) Does the instrument calibration meet the specified method criteria? (r or $r^2 \geq 0.995$)	✓		
2) If applicable, was sample pH at log-in receipt and/or analysis within method criteria?			✓
3) Are all of the QC critera listed in LIMS within specified limits?	✓		
4) If applicable, was a passing PQV indcluded in the WG?			✓
5) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	✓		
6) Was sample-analysis completed within the holding time?	✓		
7) Are all dilution factors correctly calculated and uploaded? (Soil, Sludges, Water)	✓		
8) Are dilutions in the appropriate range? (explain if "B" or "U" reported for sample)	✓		
9) Are all applicable qualifiers transferred from bench sheet to LIMS?	✓		
10) Is a current standard/reagent sheet attached to the workgroup?	✓		
11) For soil/sludge analyses: Reviewed raw data for sample o-cals and sample concentrations < (-3xMDL).			✓
12) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Continuing Calibration? – Calibration WG: –

Prep WG#: 415879 Disposable Vessel Lot#*: A102948 S4

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action

Comments:

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

NH3-KCL

QC List Type: QC-RFA-NH3-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: icv/b-ccv/b-dup-as
Group ID: WC-G-RFA-NH3-KCL
Method Ref: M350.1
SOP Ref: SOPWC008

WG415949

ACZ Laboratories, Inc

Instrument ID: FIA2
Analyst:
ACZ Dept: 37
Create Date: 01/10/2017 12:05
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	PSolid	TSolid	Analysis Date	NNH3KCL	Ammonia (mg/Kg)	Instrument Dilution Factor (units)	Prep Dilution Factor (units)	Dilution
23	L34674-09	SB-15AL (0-25)	So		10	93			✓				10
24	L34674-10	SB-15AL (25-50)			10	93.3			✓				10
25	WG415949CCV2	WI161031-9			1				✓				1
26	WG415949CCB2	NONE			1				✓				1
27	L34674-14	SB-09GT (8-12-DUPLIC			10	87.7			✓				10
28	WG415949CCV3	WI161031-9							✓				
29	WG415949CCB3	NONE							✓				

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

KCL

WG415879

ACZ Laboratories, Inc

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415879PBS	NONE	<2000		01/09/17 11:30	0	100	10	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/09/17 11:46	10	100	10	
3	L34445-01DUP	NONE	<2000		01/09/17 12:02	10	100	10	
4	L34445-02	TP-12 (2-4)	<2000		01/09/17 12:18	10	100	10	
5	L34445-03	TP-15_16 (2-13)	<2000		01/09/17 12:35	10	100	10	
6	L34445-04	TP-20 (1-4)	<2000		01/09/17 12:51	10	100	10	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/09/17 13:07	10	100	10	
8	L34674-02	SB-07GT (0-4)	<2000		01/09/17 13:23	10	100	10	
9	L34674-03	SB-09GT (8-12)	<2000		01/09/17 13:40	10	100	10	
10	L34674-04	SB-09GT (18-22)	<2000		01/09/17 13:56	10	100	10	
11	L34674-05	SB-12GT (0-27)	<2000		01/09/17 14:12	10	100	10	
12	L34674-06	SB-13AL (0-25)	<2000		01/09/17 14:28	10	100	10	
13	L34674-07	SB-14AL (0-15)	<2000		01/09/17 14:45	10	100	10	
14	L34674-08	SB-14AL (15-35)	<2000		01/09/17 15:01	10	100	10	
15	L34674-09	SB-15AL (0-25)	<2000		01/09/17 15:17	10	100	10	
16	L34674-10	SB-15AL (25-50)	<2000		01/09/17 15:33	10	100	10	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/09/17 15:50	10	100	10	

R

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ LABORATORIES, INC
2773 Downhill Drive
Steamboat Springs, CO 80487

WET CHEMISTRY INSTRUMENT REAGENTS INFORMATION

Instrument: LACHAT

Parameter: AMMONIA

Instrument Reagents

	SCN	Prep by:	Expiration Date:
1) Alkaline Donor *made monthly	WIR161228-4	spl	1/28/2017
2) DCIC Reagent *made daily	WIR170110-3	spl	1/10/2017
3) Buffer Solution *made monthly	WIR161219-3	spl	1/19/2017
4) Salicylate-Nitroprusside *made weekly	WIR170110-2	spl	1/17/2017
5) Carrier 0.4% H2SO4	PCN52237	spl	1/9/2018

All reagents prepared according to SOP

Author: wcins

Date : 1/10/2017

Original Run Filename: OM_1-10-2017_12-25-10PM.OMN Created: 1/10/2017 12:25:10 PM
Original Run Author's Signature: [wcins]
Current Run Filename: wg415949.omn Last Modified: 1/10/2017 1:24:03 PM
Current Run Author's Signature: [wcins]
Description: 10-115-01-4-F

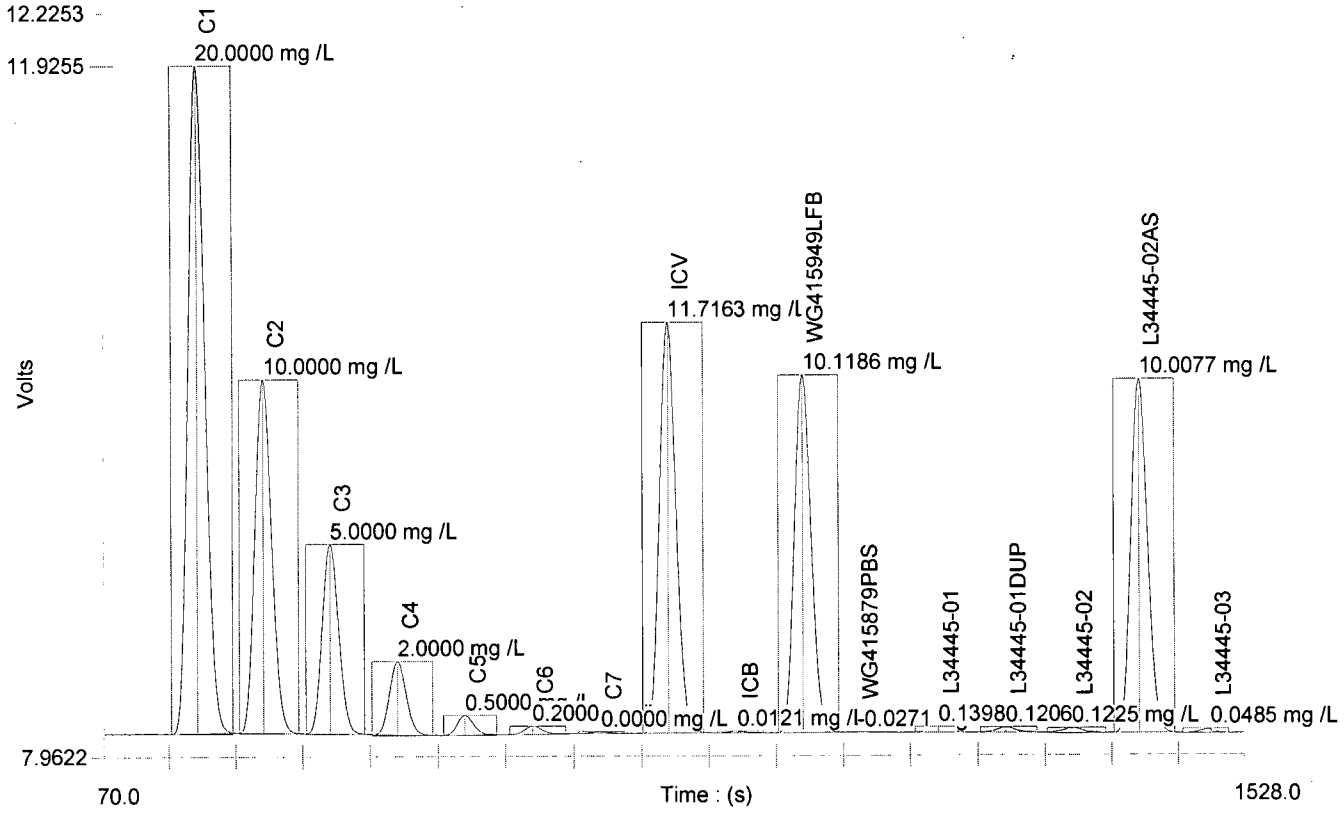
Sample	Cup No.	Channel 1 N-NH3 Conc. (mg /L)	Area (V.s)	Detection Time	MDF
C1	S1	20.0000	94.8752	1/10/2017@12:26:22 PM	
C2	S2	10.0000	49.5799	1/10/2017@12:27:47 PM	
C3	S3	5.0000	26.2909	1/10/2017@12:29:12 PM	
C4	S4	2.0000	10.3152	1/10/2017@12:30:38 PM	
C5	S5	0.5000	2.7409	1/10/2017@12:32:04 PM	
C6	S6	0.2000	1.1876	1/10/2017@12:33:31 PM	
C7	S7	0.0000	0.2712	1/10/2017@12:34:58 PM	
ICV	S8	11.7163	57.8708	1/10/2017@12:36:25 PM	
	Known Conc:	12.0000			
		DQM Test: > + Percent Relative Difference			
	Result:	-2.4 < 10.0			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Percent Relative Difference			
	Result:	-2.4 < 10.0			
	Message	QC PASSED			
	Action	Continue			
	Calibration:	Table/Fig. : 1			
ICB	S7	0.0121	0.2521	1/10/2017@12:37:52 PM	
	Known Conc:	0.0000			
		DQM Test: > + Concentration Limit			
	Result:	0.0121 < 0.0500			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Concentration Limit			
	Result:	0.0121 > -0.1500			
	Message	Pass			
	Action				
WG415949LFB	1	10.1186	50.4092	1/10/2017@12:39:18 PM	1.00
WG415879PBS	2	-0.0271	0.0463	1/10/2017@12:40:45 PM	10.00
L34445-01	3	0.1398	0.9220	1/10/2017@12:42:10 PM	10.00
L34445-01DUP	4	0.1206	0.8215	1/10/2017@12:43:36 PM	10.00
L34445-02	5	0.1225	0.8316	1/10/2017@12:45:02 PM	10.00
L34445-02AS	6	10.0077	49.8868	1/10/2017@12:46:28 PM	10.00
L34445-03	7	0.0485	0.4432	1/10/2017@12:47:53 PM	10.00
L34445-04	8	0.0837	0.6279	1/10/2017@12:49:19 PM	10.00
L34674-01	9	0.1201	0.8187	1/10/2017@12:50:44 PM	10.00
L34674-02	10	0.1217	0.8270	1/10/2017@12:52:09 PM	10.00
CCV	S2	9.7032	48.4501	1/10/2017@12:53:34 PM	
	Known Conc:	10.0000			
		DQM Test: > + Percent Relative Difference			
	Result:	-3.0 < 10.0			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Percent Relative Difference			
	Result:	-3.0 < 10.0			
	Message	QC PASSED			
	Action	Continue			
CCB	S7	0.0162	0.2737	1/10/2017@12:55:01 PM	
	Known Conc:	0.0000			
		DQM Test: > + Concentration Limit			
	Result:	0.0162 < 0.0500			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Concentration Limit			
	Result:	0.0162 > -0.1500			
	Message	Pass			

	Action				
L34674-03	11	0.0652	0.5308	1/10/2017@12:56:26 PM	10.00
L34674-04	12	0.1396	0.9211	1/10/2017@12:57:51 PM	10.00
L34674-05	13	0.1464	0.9565	1/10/2017@12:59:15 PM	10.00
L34674-06	14	0.0869	0.6450	1/10/2017@1:00:40 PM	10.00
L34674-07	15	0.0855	0.6376	1/10/2017@1:02:04 PM	10.00
L34674-07DUP	16	0.0864	0.6420	1/10/2017@1:03:31 PM	10.00
L34674-08	17	0.1242	0.8405	1/10/2017@1:04:57 PM	10.00
L34674-08AS	18	10.1444	50.5304	1/10/2017@1:06:24 PM	10.00
L34674-09	19	0.2829	1.6714	1/10/2017@1:07:50 PM	10.00
L34674-10	20	0.1134	0.7835	1/10/2017@1:09:16 PM	10.00
CCV	S2	9.6302	48.1051	1/10/2017@1:10:41 PM	
	Known Conc:	10.0000			
		DQM Test: > + Percent Relative Difference			
	Result:	-3.7 < 10.0			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Percent Relative Difference			
	Result:	-3.7 < 10.0			
	Message	QC PASSED			
	Action	Continue			
CCB	S7	0.0234	0.3118	1/10/2017@1:12:07 PM	
	Known Conc:	0.0000			
		DQM Test: > + Concentration Limit			
	Result:	0.0234 < 0.0500			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Concentration Limit			
	Result:	0.0234 > -0.1500			
	Message	Pass			
	Action				
L34674-14	21	0.0604	0.5059	1/10/2017@1:13:33 PM	10.00
CCV	S2	9.3243	46.6565	1/10/2017@1:18:32 PM	
	Known Conc:	10.0000			
		DQM Test: > + Percent Relative Difference			
	Result:	-6.8 < 10.0			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Percent Relative Difference			
	Result:	-6.8 < 10.0			
	Message	QC PASSED			
	Action	Continue			
CCB	S7	0.0493	0.4478	1/10/2017@1:19:59 PM	
	Known Conc:	0.0000			
		DQM Test: > + Concentration Limit			
	Result:	0.0493 < 0.0500			
	Message	QC PASSED			
	Action	Continue			
		DQM Test: < - Concentration Limit			
	Result:	0.0493 > -0.1500			
	Message	Pass			
	Action				

Author: wcins

Date : 1/10/2017

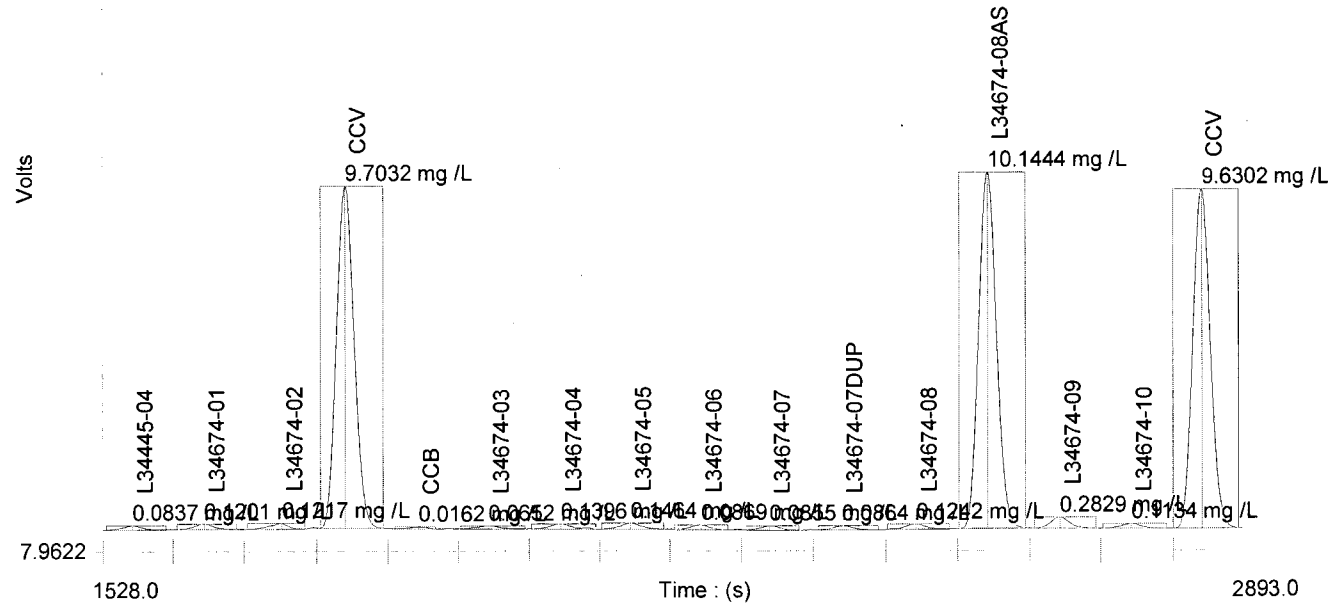
Channel 1 (N-Nh3) - Set: 1 / 3



Author: wcins

Date : 1/10/2017

Channel 1 (N-Nh3) - Set: 2 / 3



Author: wcins

Date : 1/10/2017

Channel 1 (N-Nh3) - Set: 3 / 3

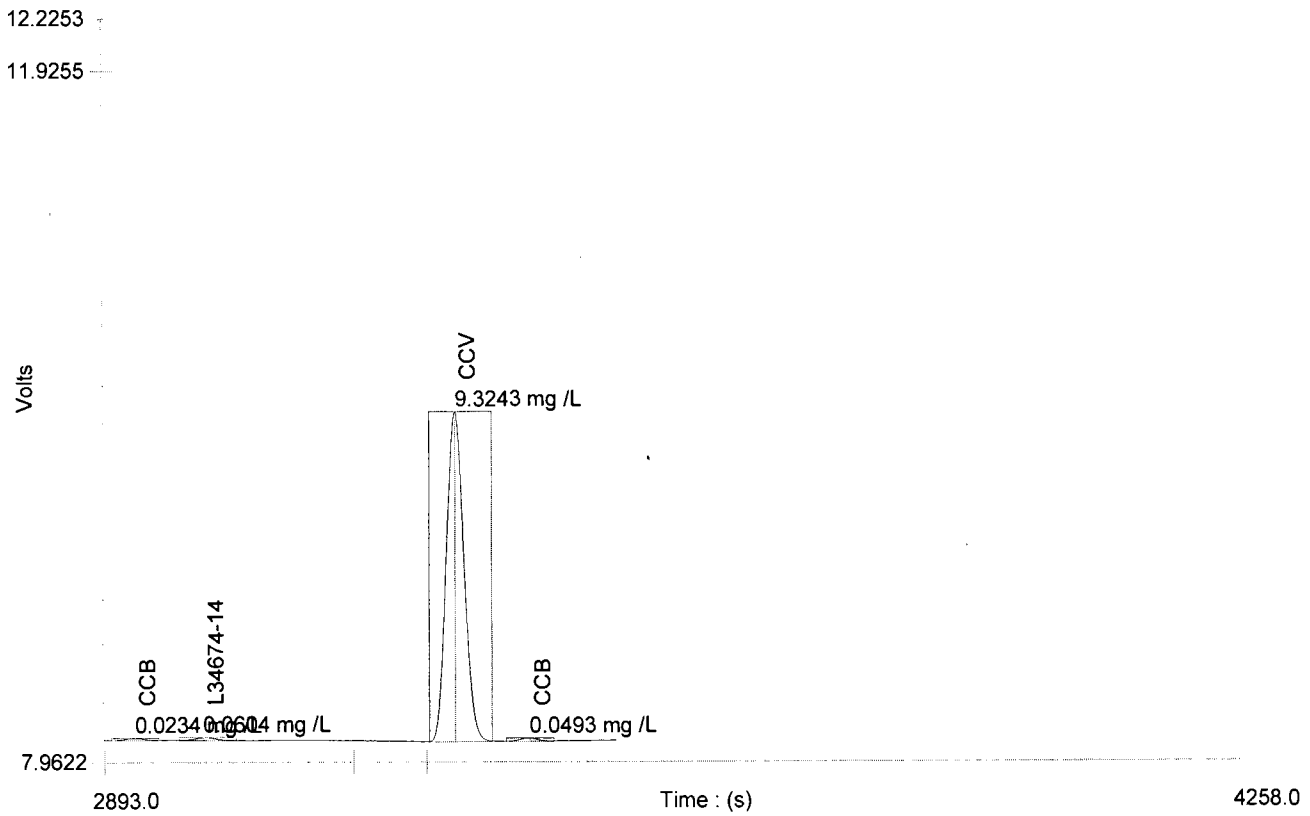
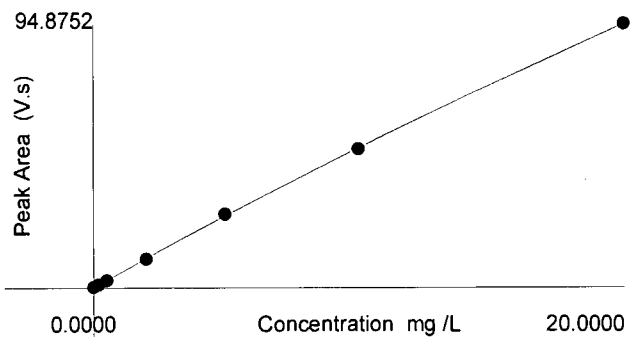


Table : 1 (N-NH3)

	Known Conc. (mg /L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (mg /L)	Detection Date	Detection Time
1	20.0000	1	94.8752	3.8281	0.0	0.0	20.0005	1/10/2017	12:26:22 PM
2	10.0000	1	49.5799	2.0207	0.0	0.7	9.9426	1/10/2017	12:27:47 PM
3	5.0000	1	26.2909	1.0845	0.0	-2.4	5.1212	1/10/2017	12:29:12 PM
4	2.0000	1	10.3152	0.4211	0.0	2.0	1.9513	1/10/2017	12:30:38 PM
5	0.5000	1	2.7409	0.1119	0.0	2.0	0.4875	1/10/2017	12:32:04 PM
6	0.2000	1	1.1876	0.0470	0.0	4.0	0.1905	1/10/2017	12:33:31 PM
7	0.0000	1	0.2712	0.0107			0.0157	1/10/2017	12:34:58 PM

Figure : 1 (N-NH3)



Area = - 0.0241 * Conc^2 + 5.2144 * Conc + 0.1958
Conc = 2.1913e-4 * Area^2 + 0.1904 * Area - 0.0360
Correlation Coefficient (r) = 0.99999

Weighting : 1/x

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415949

Date Reported: 12-Jan-17
Run ID: R1491346
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: FIA2

WG415949ICV

Tag: Measured: 1/10/2017 12:36:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	11.72	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	98	1		%	++	0.1	0.5			

WG415949ICB

Tag: Measured: 1/10/2017 12:37:52 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		1	U	mg/L	++	0.1	0.5			

WG415949LFB

Tag: Measured: 1/10/2017 12:39:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	10.12	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	101	1		%	++	0.1	0.5			

WG415879PBS

Tag: Measured: 1/10/2017 12:40:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		10	U	mg/Kg	++	1	5			

L34445-01

Tag: Measured: 1/10/2017 12:42:10 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34445-01DUP

Tag: Measured: 1/10/2017 12:43:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	1.2	10	B	mg/Kg	++	1	5			
SREV	AMMONIA	RPD	18	10		%	++	1	5		RA	

L34445-02

Tag: Measured: 1/10/2017 12:45:02 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34445-02AS

Tag: Measured: 1/10/2017 12:46:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	100.1	10		mg/Kg	++	1	5			
SREV	AMMONIA	REC	99	10		%	++	1	5			

L34445-03

Tag: Measured: 1/10/2017 12:47:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34445-04

Tag: Measured: 1/10/2017 12:49:19 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34674-01

Tag: Measured: 1/10/2017 12:50:44 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-02

Tag: Measured: 1/10/2017 12:52:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

WG415949CCV1

Tag: Measured: 1/10/2017 12:53:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	9.7	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	97	1		%	++	0.1	0.5			

WG415949CCB1

Tag: Measured: 1/10/2017 12:55:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		1	U	mg/L	++	0.1	0.5			

L34674-03

Tag: Measured: 1/10/2017 12:56:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34674-04

Tag: Measured: 1/10/2017 12:57:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-05

Tag: Measured: 1/10/2017 12:59:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-06

Tag: Measured: 1/10/2017 1:00:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34674-07

Tag: Measured: 1/10/2017 1:02:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

L34674-07DUP

Tag: Measured: 1/10/2017 1:03:31 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		10	U	mg/Kg	++	1	5			
SREV	AMMONIA	RPD	0	10		%	++	1	5		RA	

L34674-08

Tag: Measured: 1/10/2017 1:04:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-08AS

Tag: Measured: 1/10/2017 1:06:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	101.4	10		mg/Kg	++	1	5			
SREV	AMMONIA	REC	100	10		%	++	1	5			

L34674-09

Tag: Measured: 1/10/2017 1:07:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	3	10	B	mg/Kg	++	1	5		HD RA TB	

L34674-10

Tag: Measured: 1/10/2017 1:09:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL	1	10	B	mg/Kg	++	1	5		HD RA TB	

WG415949CCV2

Tag: Measured: 1/10/2017 1:10:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	9.63	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	96	1		%	++	0.1	0.5			

WG415949CCB2

Tag: Measured: 1/10/2017 1:12:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		1	U	mg/L	++	0.1	0.5			

L34674-14

Tag: Measured: 1/10/2017 1:13:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	N-NH3-KCL		10	U	mg/Kg	++	1	5		HD RA TB	

WG415949CCV3

Tag: Measured: 1/10/2017 1:18:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND	9.32	1		mg/L	++	0.1	0.5			
SREV	AMMONIA	REC	93	1		%	++	0.1	0.5			

WG415949CCB3

Tag: Measured: 1/10/2017 1:19:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AMMONIA	FOUND		1	U	mg/L	++	0.1	0.5			

N-NO3NO2-KCL

QC List Type: QC-RFA-NO3NO2-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NO3NO2-KCL
QC Ref: WC-RFA-D-SOL
Group ID: WC-G-RFA-NO3NO2-KCL
Method Ref: M353.2
SOP Ref: SOPWC016

WG415988

ACZ Laboratories, Inc

Instrument ID: FIA2
Analyst: PJD
ACZ Dept: 37
Create Date: 01/10/2017 18:42
Start Date/Time: 1/10/17
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	NO2KCL	NO3NO2KCL	Nitrite (mg/Kg)	Nitrate/Nitrite (mg/Kg)	pH Screen	Chlorine Screen	Dilution	Comments
1	WG415988ICV	WI161209-3			1	✓	✓					1	
2	WG415988ICB	NONE			1	✓	✓					1	
3	WG415988LFB	WI170104-22			1	✓	✓					1	
4	WG415879PBS	NONE	w		10	✓	✓			7	–	10	
5	L34445-01	TP-6_7_9 (2-5)			10	✓	✓			7	–	10	
6	L34445-01DUP	NONE			10	✓	✓			7	–	10	
7	L34445-02	TP-12 (2-4)			10	✓	✓			7	–	10	
8	L34445-02AS	WI170104-22			1	✓	✓			7	–	10	
9	L34445-03	TP-15_16 (2-13)			10	✓	✓			7	–	10	
10	L34445-04	TP-20 (1-4)			10	✓	✓			7	–	10	
11	L34674-01	SB-06GT (1.5-10)			10	✓	✓			7	–	10	
12	L34674-02	SB-07GT (0-4)			10	✓	✓			7	–	10	
13	WG415988CCV1	WI170104-24			1	✓	✓					1	
14	WG415988CCB1	NONE			1	✓	✓					1	
15	L34674-03	SB-09GT (8-12)	w		10	✓	✓			7	–	10	
16	L34674-04	SB-09GT (18-22)			10	✓	✓			7	–	10	
17	L34674-05	SB-12GT (0-27)			10	✓	✓			7	–	10	
18	L34674-06	SB-13AL (0-25)			10	✓	✓			7	–	10	
19	L34674-07	SB-14AL (0-15)			10	✓	✓			7	–	10	
20	L34674-08	SB-14AL (15-35)			10	✓	✓			7	–	10	
21	L34674-09	SB-15AL (0-25)			10	✓	✓			7	–	10	

Report Comments:

AREV: PJD 1/12/17
Initials, Date

Internal Comments

L34674-1701201346

SREV: [illegible] 1/12/17
Initials, Date

ACZ Laboratories, Inc.
WET CHEM INSTRUMENT DATA REVIEW CHECKLIST

AREV: PSJ
Date: 1/12/17

SREV: JRV
Date: 1/12/17

Instrument ID FIA2

Work Group: 415988
Sample Type: NO3 NO2-KCL
Analysis Date: 1/10/17
Analyst: PSJ

	Yes	No	N/A
1) Does the instrument calibration meet the specified method criteria? (r or $r^2 \geq 0.995$)	X		
2) If applicable, was sample pH at log-in receipt and/or analysis within method criteria?	X		
3) Are all of the QC critera listed in LIMS within specified limits?		X	
4) If applicable, was a passing PQV indcluded in the WG?			X
5) Are all errors properly corrected (i.e. single-line crossout, dated & initialed)?	X		
6) Was sample-analysis completed within the holding time?	X		
7) Are all dilution factors correctly calculated and uploaded? (Soil, Sludges, Water)	X		
8) Are dilutions in the appropriate range? (explain if "B" or "U" reported for sample)	X		
9) Are all applicable qualifiers transferred from bench sheet to LIMS?	X		
10) Is a current standard/reagent sheet attached to the workgroup?	X		
11) For soil/sludge analyses: Reviewed raw data for sample o-cals and sample concentrations < (-3xMDL).			X
12) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Continuing Calibration? no Calibration WG: —

Prep WG#: 415879 Disposable Vessel Lot#*: FA2FAW8115, A1c3064-63

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
445-01	Dup <10X MDL	RA
445-02	MS high recovery 111%	M1

Comments:

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

N-NO3NO2-KCL

QC List Type: QC-RFA-NO3NO2-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NO3NO2-KCL
QC Ref: WC-RFA-D-SOL
Group ID: WC-G-RFA-NO3NO2-KCL
Method Ref: M353.2
SOP Ref: SOPWC016

WG415988

ACZ Laboratories, Inc

Instrument ID: FIA2
Analyst:
ACZ Dept: 37
Create Date: 01/10/2017 18:42
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	N NO2 KCL	N NO3NO2 KCL	Nitrite (mg/Kg)	Nitrate/Nitrite (mg/Kg)	pH Screen	Chlorine Screen	Dilution	Comments
22	L34674-10	SB-15AL (25-50)	w		10	☑	☑			7	–	10	
23	L34674-14	SB-09GT (8-12-DUPLIC	↓		10	☑	☑			7	–	10	
24	WG415988CCV2	WI170104-24			1	☑	☑					1	
25	WG415988CCB2	NONE			1	☑	☑					1	

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L34674-1701201346

KCL

WG415879

ACZ Laboratories, Inc

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415879PBS	NONE	<2000		01/09/17 11:30	0	100	10	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/09/17 11:46	10	100	10	
3	L34445-01DUP	NONE	<2000		01/09/17 12:02	10	100	10	
4	L34445-02	TP-12 (2-4)	<2000		01/09/17 12:18	10	100	10	
5	L34445-03	TP-15_16 (2-13)	<2000		01/09/17 12:35	10	100	10	
6	L34445-04	TP-20 (1-4)	<2000		01/09/17 12:51	10	100	10	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/09/17 13:07	10	100	10	
8	L34674-02	SB-07GT (0-4)	<2000		01/09/17 13:23	10	100	10	
9	L34674-03	SB-09GT (8-12)	<2000		01/09/17 13:40	10	100	10	
10	L34674-04	SB-09GT (18-22)	<2000		01/09/17 13:56	10	100	10	
11	L34674-05	SB-12GT (0-27)	<2000		01/09/17 14:12	10	100	10	
12	L34674-06	SB-13AL (0-25)	<2000		01/09/17 14:28	10	100	10	
13	L34674-07	SB-14AL (0-15)	<2000		01/09/17 14:45	10	100	10	
14	L34674-08	SB-14AL (15-35)	<2000		01/09/17 15:01	10	100	10	
15	L34674-09	SB-15AL (0-25)	<2000		01/09/17 15:17	10	100	10	
16	L34674-10	SB-15AL (25-50)	<2000		01/09/17 15:33	10	100	10	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/09/17 15:50	10	100	10	

Report Comments:

Internal Comments

L34674-1701201346

AREV: Bcc 1-9-17
Initials, Date

SREV: BPO 1/10/17
Initials, Date

1/9/2017 3:53:59 PM 122316

ACZ LABORATORIES, INC
2773 Downhill Drive
Steamboat Springs, CO 80487

WET CHEMISTRY INSTRUMENT REAGENTS INFORMATION

Instrument: Lachat

Parameter: NO_3NO_2 Dissolved / Yellow / Sludge / KCL / MWMT / WE / 1312

Standard Preparation & Documentation

Instrument Reagents	SCN/PCN	Prepped by:	Expiration Date:
1) Stock Ammonium Chloride EDTA Buffer	WIR170104-6	pjb	1/4/2018
2) NO3NO2 and NO2 Color Reagent	WIR161220-3	pjb	3/20/2017
3) NH4OH (yellows and KCls only)	PCN40337		7/16/2017
4) HCl (yellows only)	PCN48881		2/28/2020

***Refer to SOP for standard and reagent prep.**

Author: wcins

Date : 1/10/2017

Original Run Filename: OM_1-10-2017_08-43-38PM.OMN Created: 1/10/2017 8:43:38 PM
Original Run Author's Signature: [wcins]
Current Run Filename: wg415988.omn Last Modified: 1/10/2017 10:32:27 PM
Current Run Author's Signature: [wcins]
Description: 10-117-07-1-C

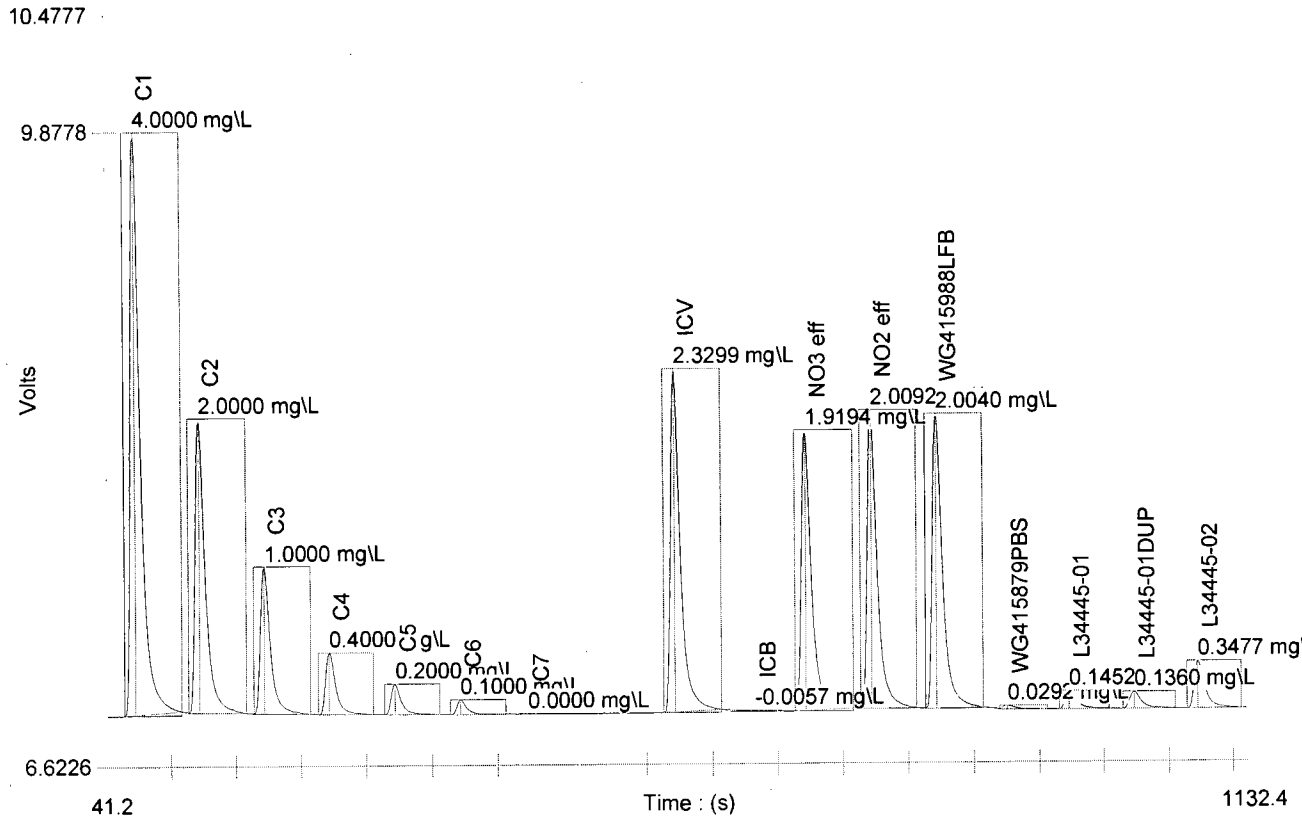
Sample	Cup No.	Channel 1 NO3NO2 Conc. (mg\L)	Channel 1 NO3NO2 Area (V.s)	Channel 2 NO2 Conc. (mg\L)	Channel 2 NO2 Area (V.s)	Detection Time	MDF
C1	S1	4.0000	33.5326	2.0000	14.9516	1/10/2017@8:44:40 PM	
C2	S2	2.0000	16.6139	1.0000	7.5657	1/10/2017@8:45:56 PM	
C3	S3	1.0000	8.2459	0.5000	3.8139	1/10/2017@8:47:11 PM	
C4	S4	0.4000	3.4529	0.2000	1.6275	1/10/2017@8:48:26 PM	
C5	S5	0.2000	1.7454	0.1000	0.8382	1/10/2017@8:49:42 PM	
C6	S6	0.1000	0.8750	0.0500	0.4248	1/10/2017@8:50:58 PM	
C7	S7	0.0000	0.0363	0.0000	-0.0089	1/10/2017@8:52:15 PM	
DQM Test: Minimum Correlation Coefficient							
	Result:	0.99997 > 0.99500		0.99996 > 0.99500			
	Message	Cal Passed		Cal Passed			
	Action	Continue		Continue			
ICV	S8	2.3299	19.4933	0.5906	4.4761	1/10/2017@8:55:08 PM	
	Known Conc:	2.4161		0.6089			
DQM Test: > + Percent Relative Difference							
	Result:	-3.6 < 10.0		-3.0 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Percent Relative Difference							
	Result:	-3.6 < 10.0		-3.0 < 10.0			
	Message	Pass		QC PASSED			
	Action			Continue			
	Calibration:	Table/Fig. : 1		Table/Fig. : 2			
ICB	S7	-0.0057	-0.0262	-0.0055	0.0324	1/10/2017@8:56:24 PM	
	Known Conc:	0.0000		0.0000			
DQM Test: > + Concentration Limit							
	Result:	-0.0057 < 0.0200		-0.0055 < 0.0100			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Concentration Limit							
	Result:	-0.0057 > -0.0600		-0.0055 > -0.0300			
	Message	Pass		Pass			
	Action						
NO3 eff	1	1.9194	16.0624	-0.0048	0.0375	1/10/2017@8:57:40 PM	1.00
NO2 eff	2	2.0092	16.8131	2.0031	15.0049	1/10/2017@8:58:57 PM	1.00
WG415988LFB	3	2.0040	16.7700	1.0195	7.6731	1/10/2017@9:00:12 PM	1.00
WG415879PBS	4	0.0292	0.2649	0.0333	0.3215	1/10/2017@9:01:28 PM	10.00
L34445-01	5	0.1452	1.2349	0.0632	0.5444	1/10/2017@9:02:44 PM	10.00
L34445-01DUP	6	0.1360	1.1580	0.0613	0.5308	1/10/2017@9:03:58 PM	10.00
L34445-02	7	0.3477	2.9270	0.0760	0.6397	1/10/2017@9:05:14 PM	10.00
L34445-02AS	8	2.3014	19.2551	1.1069	8.3246	1/10/2017@9:06:29 PM	10.00
L34445-03	9	0.1562	1.3269	0.0660	0.5657	1/10/2017@9:07:45 PM	10.00
L34445-04	10	0.1223	1.0436	0.0732	0.6192	1/10/2017@9:08:59 PM	10.00
CCV	S2	1.9548	16.3585	1.0008	7.5338	1/10/2017@9:10:14 PM	
	Known Conc:	2.0000		1.0000			
DQM Test: > + Percent Relative Difference							
	Result:	-2.3 < 10.0		0.1 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Percent Relative Difference							
	Result:	-2.3 < 10.0		0.1 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
CCB	S7	0.0052	0.0650	-0.0021	0.0576	1/10/2017@9:13:06 PM	
	Known Conc:	0.0000		0.0000			
DQM Test: > + Concentration Limit							
	Result:	0.0052 < 0.0200		-0.0021 < 0.0100			
	Message	QC PASSED		QC PASSED			

	Action	Continue		Continue			
DQM Test: < - Concentration Limit							
	Result:	0.0052 > -0.0600		-0.0021 > -0.0300			
	Message	Pass		Pass			
	Action						
L34674-01	11	0.3266	2.7512	0.0742	0.6264	1/10/2017@9:14:21 PM	10.00
L34674-02	12	0.1296	1.1043	0.0794	0.6653	1/10/2017@9:15:35 PM	10.00
L34674-03	13	0.1281	1.0922	0.0727	0.6156	1/10/2017@9:16:50 PM	10.00
L34674-04	14	0.1312	1.1176	0.0606	0.5250	1/10/2017@9:18:04 PM	10.00
L34674-05	15	0.3639	3.0627	0.0801	0.6709	1/10/2017@9:19:19 PM	10.00
L34674-06	16	0.0976	0.8373	0.0695	0.5916	1/10/2017@9:20:35 PM	10.00
L34674-07	17	0.0867	0.7461	0.0680	0.5805	1/10/2017@9:21:51 PM	10.00
L34674-08	18	0.1011	0.8659	0.0661	0.5660	1/10/2017@9:23:07 PM	10.00
L34674-09	19	0.0838	0.7216	0.0733	0.6197	1/10/2017@9:24:23 PM	10.00
L34674-10	20	0.0797	0.6873	0.0728	0.6163	1/10/2017@9:25:39 PM	10.00
CCV	S2	1.9361	16.2027	0.9954	7.4935	1/10/2017@9:26:54 PM	
	Known Conc:	2.0000		1.0000			
DQM Test: > + Percent Relative Difference							
	Result:	-3.2 < 10.0		-0.5 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Percent Relative Difference							
	Result:	-3.2 < 10.0		-0.5 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
CCB	S7	0.0032	0.0476	-0.0060	0.0284	1/10/2017@9:29:46 PM	
	Known Conc:	0.0000		0.0000			
DQM Test: > + Concentration Limit							
	Result:	0.0032 < 0.0200		-0.0060 < 0.0100			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Concentration Limit							
	Result:	0.0032 > -0.0600		-0.0060 > -0.0300			
	Message	Pass		Pass			
	Action						
L34674-14	21	0.1218	1.0388	0.0637	0.5483	1/10/2017@9:31:02 PM	10.00
CCV	S2	1.9352	16.1947	1.0065	7.5764	1/10/2017@9:33:52 PM	
	Known Conc:	2.0000		1.0000			
DQM Test: > + Percent Relative Difference							
	Result:	-3.2 < 10.0		0.7 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Percent Relative Difference							
	Result:	-3.2 < 10.0		0.7 < 10.0			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
CCB	S7	-5.3601e-5	0.0208	-0.0054	0.0333	1/10/2017@9:36:44 PM	
	Known Conc:	0.0000		0.0000			
DQM Test: > + Concentration Limit							
	Result:	-5.3601e-5 < 0.0200		-0.0054 < 0.0100			
	Message	QC PASSED		QC PASSED			
	Action	Continue		Continue			
DQM Test: < - Concentration Limit							
	Result:	-5.3601e-5 > -0.0600		-0.0054 > -0.0300			
	Message	Pass		Pass			
	Action						

Author: wcins

Date : 1/10/2017

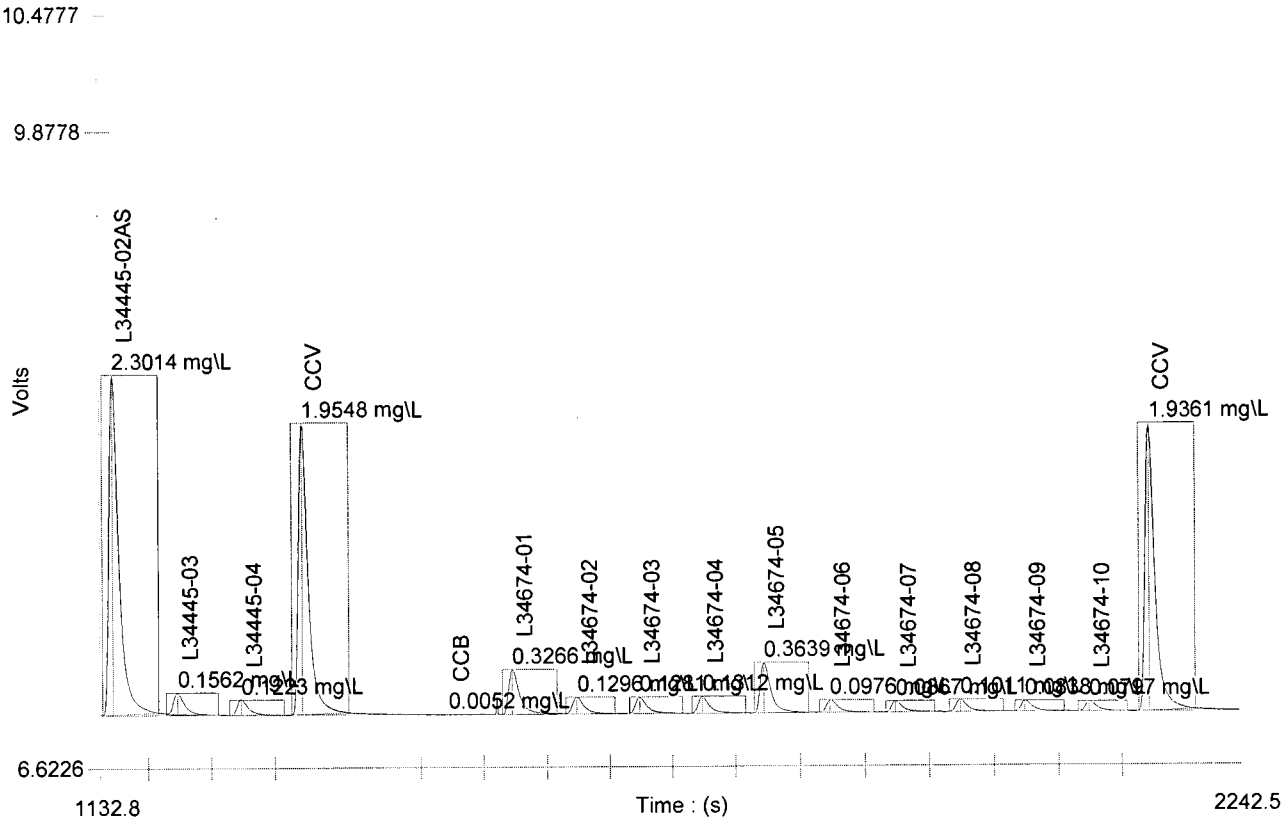
Channel 1 (NO3NO2) - Set: 1 / 3



Author: wcins

Date : 1/10/2017

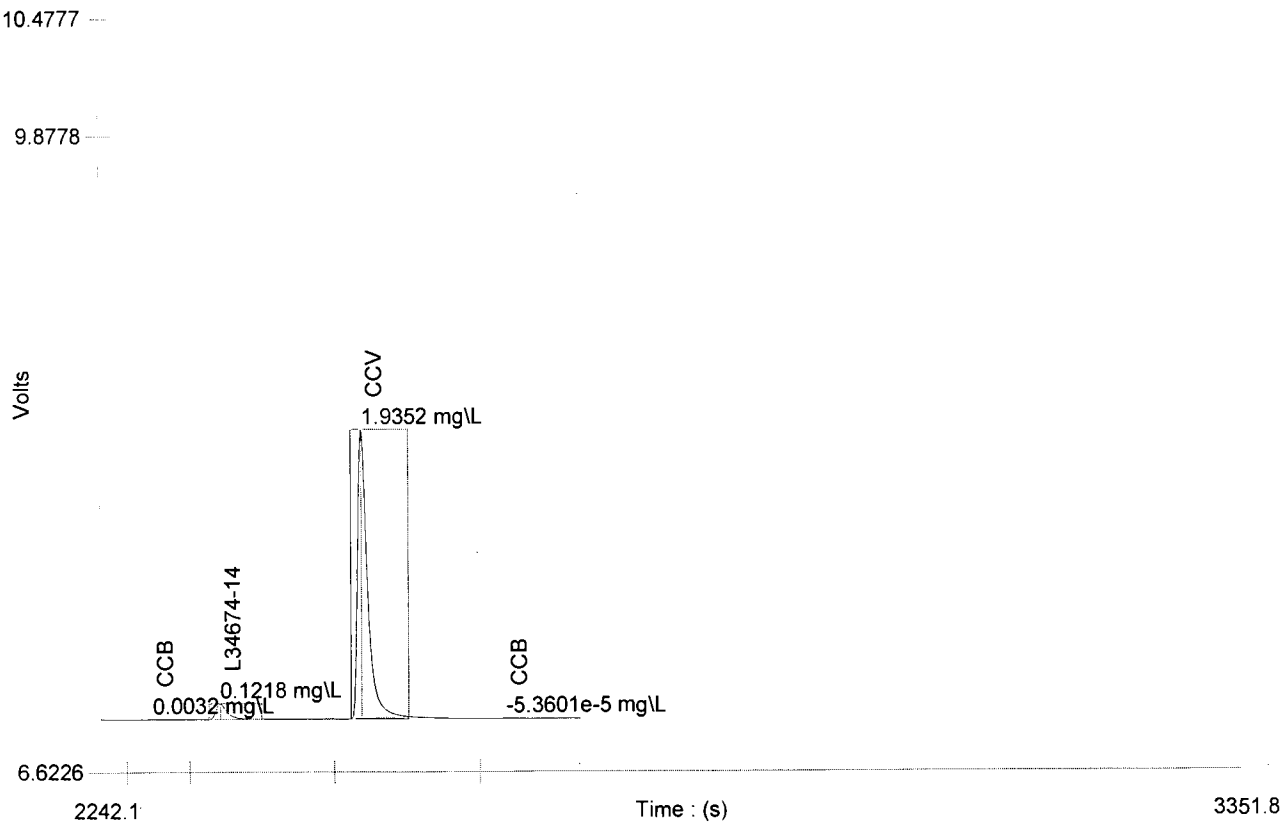
Channel 1 (NO3NO2) - Set: 2 / 3



Author: wcins

Date : 1/10/2017

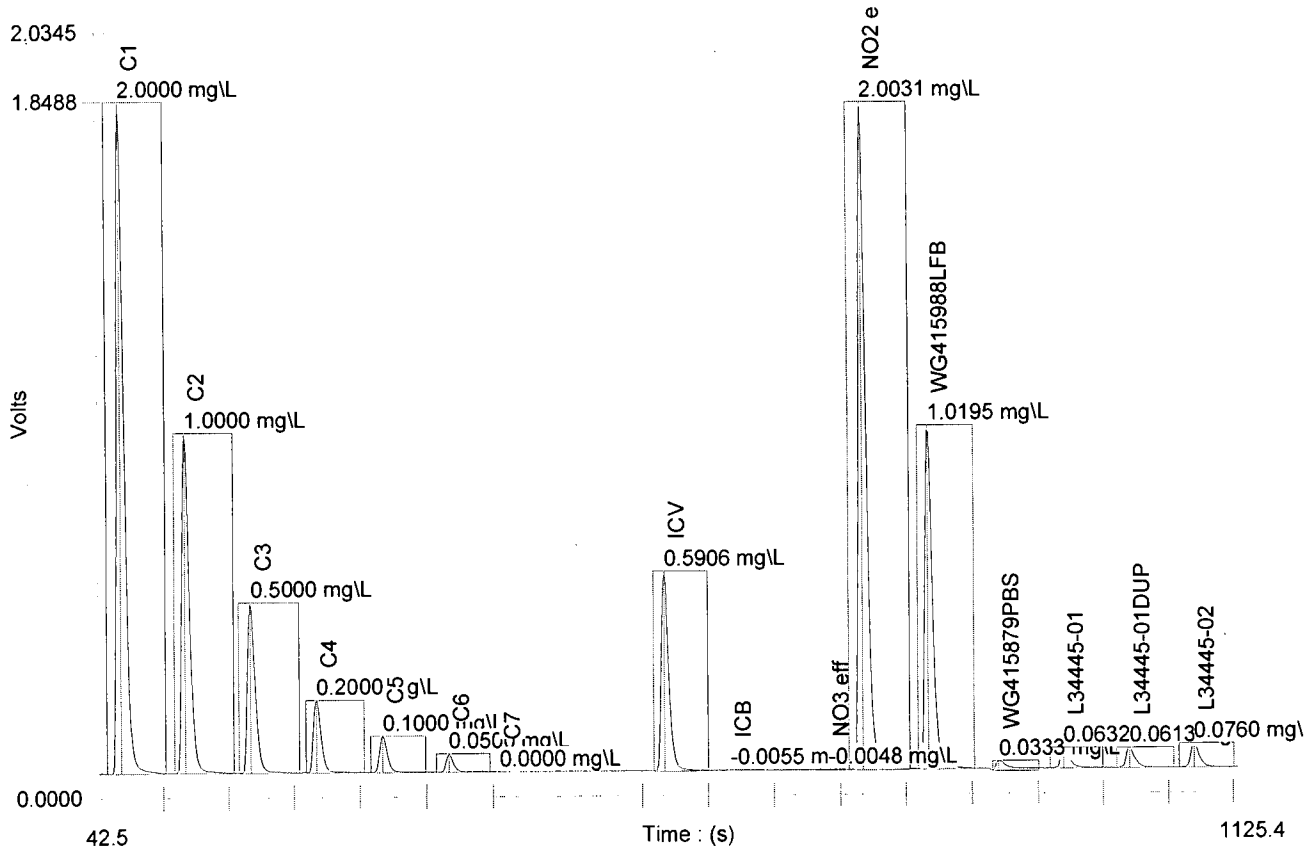
Channel 1 (NO3NO2) - Set: 3 / 3



Author: wcins

Date : 1/10/2017

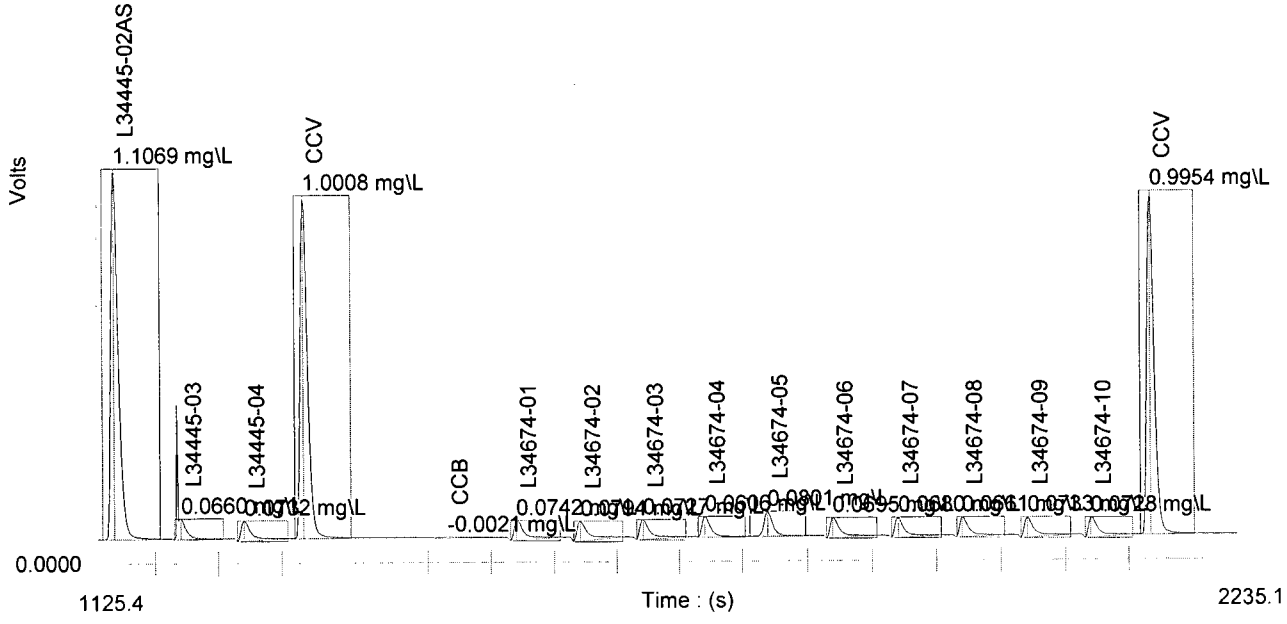
Channel 2 (NO2) - Set: 1 / 3



Author: wcins

Date : 1/10/2017

Channel 2 (NO2) - Set: 2 / 3



Author: wcins

Date : 1/10/2017

Channel 2 (NO2) - Set: 3 / 3

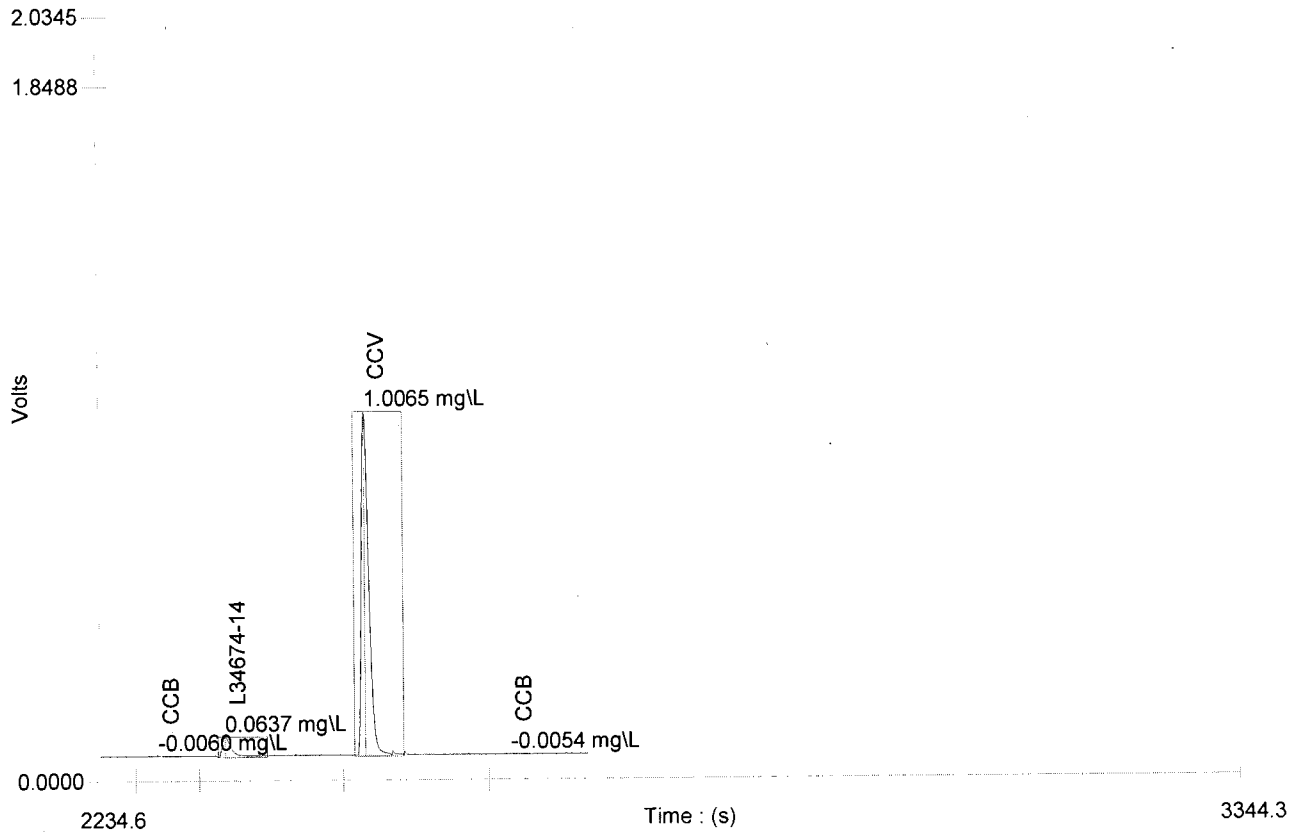


Table : 1 (NO3NO2)

	Known Conc. (mg\L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (mg\L)	Detection Date	Detection Time
1	4.0000	1	33.5326	2.9869	0.0	-0.2	4.0097	1/10/2017	8:44:40 PM
2	2.0000	1	16.6139	1.5014	0.0	0.7	1.9853	1/10/2017	8:45:56 PM
3	1.0000	1	8.2459	0.7516	0.0	1.6	0.9841	1/10/2017	8:47:11 PM
4	0.4000	1	3.4529	0.3161	0.0	-2.6	0.4106	1/10/2017	8:48:26 PM
5	0.2000	1	1.7454	0.1582	0.0	-3.1	0.2063	1/10/2017	8:49:42 PM
6	0.1000	1	0.8750	0.0765	0.0	-2.0	0.1022	1/10/2017	8:50:58 PM
7	0.0000	1	0.0363	0.0030			0.0018	1/10/2017	8:52:15 PM

Figure : 1 (NO3NO2)

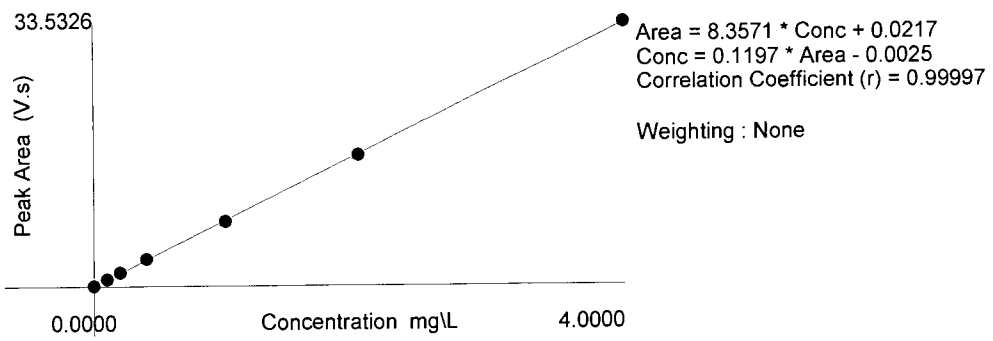
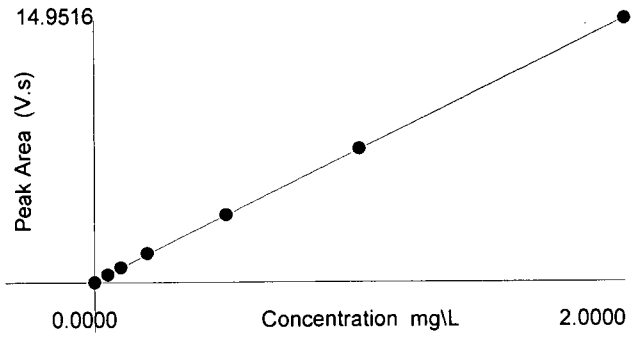


Table : 2 (NO2)

	Known Conc. (mg\L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (mg\L)	Detection Date	Detection Time
1	2.0000	1	14.9516	1.7836	0.0	0.2	1.9960	1/10/2017	8:44:42 PM
2	1.0000	1	7.5657	0.9016	0.0	-0.5	1.0051	1/10/2017	8:45:57 PM
3	0.5000	1	3.8139	0.4521	0.0	-0.4	0.5018	1/10/2017	8:47:13 PM
4	0.2000	1	1.6275	0.1930	0.0	-4.0	0.2085	1/10/2017	8:48:28 PM
5	0.1000	1	0.8382	0.0973	0.0	-2.3	0.1026	1/10/2017	8:49:44 PM
6	0.0500	1	0.4248	0.0495	0.0	4.9	0.0471	1/10/2017	8:51:00 PM
7	0.0000	1	-0.0089	-0.0012			-0.0111	1/10/2017	8:52:17 PM

Figure : 2 (NO2)



Area = 7.4535 * Conc + 0.0738
Conc = 0.1342 * Area - 0.0099
Correlation Coefficient (r) = 0.99996

Weighting : None

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415988

Date Reported: 12-Jan-17
Run ID: R1491300
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: FIA2

WG415988ICV

Tag: Measured: 1/10/2017 8:55:10 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	2.33	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	96	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	0.59	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	97	1		%	++	0.1	0.5			

WG415988ICB

Tag: Measured: 1/10/2017 8:56:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		1	U	mg/L	++	0.2	0.5			
SREV	NITRITE	FOUND		1	U	mg/L	++	0.1	0.5			

WG415988LFB

Tag: Measured: 1/10/2017 9:00:14 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	2	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	100	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	1.02	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	102	1		%	++	0.1	0.5			

WG415879PBS

Tag: Measured: 1/10/2017 9:01:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		10	U	mg/Kg	++	2	5			
SREV	NITRITE	FOUND		10	U	mg/Kg	++	1	5			

L34445-01

Tag: Measured: 1/10/2017 9:02:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34445-01DUP

Tag: Measured: 1/10/2017 9:04:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		10	U	mg/Kg	++	2	5			
SREV	NITRATE/NITRITE	RPD	0	10		%	++	2	5		RA	
SREV	NITRITE	FOUND		10	U	mg/Kg	++	1	5			
SREV	NITRITE	RPD	0	10		%	++	1	5		RA	

L34445-02

Tag: Measured: 1/10/2017 9:05:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL	3	10	B	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34445-02AS

Tag: Measured: 1/10/2017 9:06:31 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	23	10		mg/Kg	++	2	5			
SREV	NITRATE/NITRITE	REC	100	10		%	++	2	5			
SREV	NITRITE	FOUND	11.1	10		mg/Kg	++	1	5			
SREV	NITRITE	REC	111	10		%	ALRT	1	5		M1	

L34445-03

Tag: Measured: 1/10/2017 9:07:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34445-04

Tag: Measured: 1/10/2017 9:09:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

WG415988CCV1

Tag: Measured: 1/10/2017 9:10:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	1.95	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	98	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	1	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	100	1		%	++	0.1	0.5			

WG415988CCB1

Tag: Measured: 1/10/2017 9:13:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		1	U	mg/L	++	0.2	0.5			
SREV	NITRITE	FOUND		1	U	mg/L	++	0.1	0.5			

L34674-01

Tag: Measured: 1/10/2017 9:14:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL	3	10	B	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-02

Tag: Measured: 1/10/2017 9:15:37 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-03

Tag: Measured: 1/10/2017 9:16:52 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-04

Tag: Measured: 1/10/2017 9:18:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-05

Tag: Measured: 1/10/2017 9:19:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL	4	10	B	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-06

Tag: Measured: 1/10/2017 9:20:37 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-07

Tag: Measured: 1/10/2017 9:21:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-08

Tag: Measured: 1/10/2017 9:23:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-09

Tag: Measured: 1/10/2017 9:24:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

L34674-10

Tag: Measured: 1/10/2017 9:25:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

WG415988CCV2

Tag: Measured: 1/10/2017 9:26:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	1.94	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	97	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	1	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	100	1		%	++	0.1	0.5			

WG415988CCB2

Tag: Measured: 1/10/2017 9:29:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		1	U	mg/L	++	0.2	0.5			
SREV	NITRITE	FOUND		1	U	mg/L	++	0.1	0.5			

L34674-14

Tag: Measured: 1/10/2017 9:31:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	NO2-KCL		10	U	mg/Kg	++	2	5		HD RA TB	
SREV	NITRITE	N-NO2-KCL		10	U	mg/Kg	++	1	5		HD M1 R	

WG415988CCV3

Tag:

Measured: 1/10/2017 9:33:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND	1.94	1		mg/L	++	0.2	0.5			
SREV	NITRATE/NITRITE	REC	97	1		%	++	0.2	0.5			
SREV	NITRITE	FOUND	1.01	1		mg/L	++	0.1	0.5			
SREV	NITRITE	REC	101	1		%	++	0.1	0.5			

WG415988CCB3

Tag:

Measured: 1/10/2017 9:36:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	NITRATE/NITRITE	FOUND		1	U	mg/L	++	0.2	0.5			
SREV	NITRITE	FOUND		1	U	mg/L	++	0.1	0.5			

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415792

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:38
Start Date/Time: 01/06/2017 10:00
End Date/Time: 01/10/2017 13:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
1	WG415792PBS	NONE	<2000		01/06/17 10:00	0	7.5	5	5	50			1.291	7.646	1.291	.00	100	
2	WG415792LCSS1	PCN52516	<2000		01/06/17 14:31	0.5	7.5	5	5	50		100					100	
3	WG415792LCSSD1	PCN52516	<2000		01/06/17 19:02	0.5	7.5	5	5	50		100					100	
4	WG415792LCSS2	PCN52708	<2000		01/06/17 23:34	0.5	7.5	5	5	50		100					100	
5	WG415792LCSSD2	PCN52708	<2000		01/07/17 4:05	0.5	7.5	5	5	50		100					100	
6	L34674-01	SB-06GT (1.5-10)	<2000		01/07/17 8:36	0.5	7.5	5	5	50			1.291	7.078	6.972	98.17	102	
7	L34674-02	SB-07GT (0-4)	<2000		01/07/17 13:08	0.5	7.5	5	5	50			1.316	7.336	7.213	97.96	102	
8	L34674-03	SB-09GT (8-12)	<2000		01/07/17 17:39	0.5	7.5	5	5	50			1.314	7.784	7.683	98.44	102	
9	L34674-04	SB-09GT (18-22)	<2000		01/07/17 22:10	0.5	7.5	5	5	50			1.312	7.573	7.444	97.94	102	
10	L34674-04MS	II161222-8	<2000		01/08/17 2:42	0.5	7.5	5	5	50	0.5	97.94	1.31	7.555	7.426	97.93	102	AD QC
11	L34674-04MSD	II161222-8	<2000		01/08/17 7:13	0.5	7.5	5	5	50	0.5	97.94					102	
12	L34674-05	SB-12GT (0-27)	<2000		01/08/17 11:45	0.5	7.5	5	5	50			1.296	7.111	7.031	98.62	101	
13	L34674-06	SB-13AL (0-25)	<2000		01/08/17 16:16	0.5	7.5	5	5	50			1.297	7.31	7.263	99.22	101	
14	L34674-07	SB-14AL (0-15)	<2000		01/08/17 20:47	0.5	7.5	5	5	50			1.305	8.257	8.152	98.49	102	
15	L34674-07MS	MS161205-2	<2000		01/09/17 1:19	0.5	7.5	5	5	50	0.25	98.49					102	
16	L34674-07MSD	MS161205-2	<2000		01/09/17 5:50	0.5	7.5	5	5	50	0.25	98.49					102	
17	L34674-08	SB-14AL (15-35)	<2000		01/09/17 10:21	0.5	7.5	5	5	50			1.311	7.128	7.043	98.54	101	
18	L34674-09	SB-15AL (0-25)	<2000		01/09/17 14:53	0.5	7.5	5	5	50			1.312	7.588	7.532	99.11	101	
19	L34674-10	SB-15AL (25-50)	<2000		01/09/17 19:24	0.5	7.5	5	5	50			1.315	7.15	7.116	99.42	101	
20	L34674-11	SB-01_02GT (1.5-6.5)	<2000		01/09/17 23:55	0.5	7.5	5	5	50			1.293	8.778	8.598	97.60	102	
21	L34674-12	TP-6 (7-10)-DUPLICAT	<2000		01/10/17 4:27	0.5	7.5	5	5	50			1.296	7.213	7.096	98.02	102	

Report Comments: _____

Internal Comments _____

AREV: BCC 1-10-17
Initials, Date

SREV: FRD 1/12/17
Initials, Date

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415792

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:38
Start Date/Time: 01/06/2017 10:00
End Date/Time: 01/10/2017 13:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
22	L34674-13	TP-20 (12-14)-DUPLIC	<2000		01/10/17 8:58	0.5	7.5	5	5	50			1.296	7.031	6.978	99.08	101	
23	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/10/17 13:30	0.5	7.5	5	5	50			1.298	7.15	7.074	98.70	101	

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04MS	ICP Spike
L34674-04MSD	ICP Spike
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07MS	ICPMS Spike
L34674-07MSD	ICPMS Spike
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1/10/17

Approved: BRD
Date: 1/12/17

Analyst: BCC

Workgroup: 415792

Analysis Date: 1/6 - 1/10/17

Sample type used: SD

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?	X		
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
50 mL Digestion Tubes	1512329-6C-6253-QD	
HNO3	52065	6-24-18
H2O2	52628, 52627	9-30-18
HCl	52599	5-3-19

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSQ010.07.14.08

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415792

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/06/2017 9:38
Start Date/Time: 1/6/17 10:00am
End Date/Time: 1/10/17 1:30p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
1	WG415792PBS	NONE				0	7.5	5	5	50			1.291	7.646	1.291			
2	WG415792LCSS1	PCN52516				0.500												
3	WG415792LCSSD1	PCN52516				0.500												
4	WG415792LCSS2	PCN52708				0.500												
5	WG415792LCSSD2	PCN52708				0.500												
6	L34674-01	SB-06GT (1.5-10)	L2000			0.500							1.291	7.078	6.972			
7	L34674-02	SB-07GT (0-4)				0.500							1.316	7.336	7.213			
8	L34674-03	SB-09GT (8-12)				0.500							1.314	7.754	7.683			
9	L34674-04	SB-09GT (18-22)				0.500							1.312	7.573	7.449			
10	L34674-04MS	II161222-8				0.500					0.500		1.310	7.555	7.426			AA QC
11	L34674-04MSD	II161222-8				0.500					0.500							
12	L34674-05	SB-12GT (0-27)				0.500							1.296	7.111	7.031			
13	L34674-06	SB-13AL (0-25)				0.500							1.297	7.310	7.263			
14	L34674-07	SB-14AL (0-15)				0.500							1.305	8.257	8.152			
15	L34674-07MS	MS161205-2				0.500					0.250							
16	L34674-07MSD	MS161205-2				0.500					0.250							
17	L34674-08	SB-14AL (15-35)				0.500							1.311	7.128	7.043			
18	L34674-09	SB-15AL (0-25)				0.500							1.312	7.588	7.532			
19	L34674-10	SB-15AL (25-50)				0.500							1.315	7.150	7.116			
20	L34674-11	SB-01_02GT (1.5-6.5)				0.500							1.293	8.778	8.598			
21	L34674-12	TP-6 (7-10)-DUPLICAT				0.500							1.296	7.213	7.096			

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG415792

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/06/2017 9:38
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
22	L34674-13	TP-20 (12-14)-DUPLIC	L2000			0.500	7.5	5	5	50			1.296	7.031	6.928			
23	L34674-14	SB-09GT (8-12-DUPLIC	1			0.500	1	1	1	1			1.298	7.150	7.074			

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04MS	ICP Spike
L34674-04MSD	ICP Spike
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07MS	ICPMS Spike
L34674-07MSD	ICPMS Spike
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

AREV: Initials, Date

Internal Comments

SREV: Initials, Date

L34674-1701201346

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415792

Date Reported:	12-Jan-17
Run ID:	R1491201
Date Analyzed:	06-Jan-17
ICAL Workgroup:	
Instrument ID:	SOILSPREP

WG415792PBS

Tag: Measured: 1/6/2017 10:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	PREP	0	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	1.291	100		g	++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	7.646	100		g	++					
SREV	PAN WEIGHT	PREP	1.291	100		g	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	100		g	++					

WG415792LCSS1

Tag: Measured: 1/6/2017 2:31:22 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415792LCSSD

Tag: Measured: 1/6/2017 7:02:44 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415792LCSS2

Tag: Measured: 1/6/2017 11:34:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG415792LCSSD

Tag:

Measured: 1/7/2017 4:05:28 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

L34674-01

Tag:

Measured: 1/7/2017 8:36:50 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.17	102		%	++					
SREV	DILUTION	X-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	6.972	102		g	++					
SREV	H2O2	X-3050	5	102		mL	++					
SREV	HCL	X-3050	5	102		mL	++					
SREV	HNO3	X-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.078	102		g	++					
SREV	PAN WEIGHT	X-3050	1.291	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	102		g	++					

L34674-02

Tag:

Measured: 1/7/2017 1:08:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	97.96	102		%	++					
SREV	DILUTION	X-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.213	102		g	++					
SREV	H2O2	X-3050	5	102		mL	++					
SREV	HCL	X-3050	5	102		mL	++					
SREV	HNO3	X-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.336	102		g	++					
SREV	PAN WEIGHT	X-3050	1.316	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	102		g	++					

L34674-03

Tag:

Measured: 1/7/2017 5:39:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.44	102		%	++					
SREV	DILUTION	X-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.683	102		g	++					
SREV	H2O2	X-3050	5	102		mL	++					
SREV	HCL	X-3050	5	102		mL	++					
SREV	HNO3	X-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.784	102		g	++					
SREV	PAN WEIGHT	X-3050	1.314	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	102		g	++					

L34674-04

Tag:

Measured: 1/7/2017 10:10:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	97.94	102		%	++					
SREV	DILUTION	X-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.444	102		g	++					
SREV	H2O2	X-3050	5	102		mL	++					
SREV	HCL	X-3050	5	102		mL	++					
SREV	HNO3	X-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.573	102		g	++					
SREV	PAN WEIGHT	X-3050	1.312	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	102		g	++					

L34674-04MS

Tag:

Measured: 1/8/2017 2:42:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	97.94	102		%	++					
SREV	AIR DRY SOLIDS	PREP	97.93	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	7.426	102		g	++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	7.555	102		g	++					
SREV	PAN WEIGHT	PREP	1.31	102		g	++					
SREV	SCN VOLUME	PREP	0.5	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34674-04MSD

Tag:

Measured: 1/8/2017 7:13:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	97.94	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.5	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34674-05

Tag:

Measured: 1/8/2017 11:45:02 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.62	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.031	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.111	101		g	++					
SREV	PAN WEIGHT	X-3050	1.296	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34674-06

Tag:

Measured: 1/8/2017 4:16:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	99.22	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.263	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.31	101		g	++					
SREV	PAN WEIGHT	X-3050	1.297	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34674-07

Tag:

Measured: 1/8/2017 8:47:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.49	102		%	++					
SREV	DILUTION	X-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	8.152	102		g	++					
SREV	H2O2	X-3050	5	102		mL	++					
SREV	HCL	X-3050	5	102		mL	++					
SREV	HNO3	X-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	8.257	102		g	++					
SREV	PAN WEIGHT	X-3050	1.305	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	102		g	++					

L34674-07MS

Tag:

Measured: 1/9/2017 1:19:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.49	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.25	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34674-07MSD

Tag:

Measured: 1/9/2017 5:50:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	98.49	102		%	++					
SREV	DILUTION	REG	102	102			++					
SREV	H2O2	PREP	5	102		mL	++					
SREV	HCL	PREP	5	102		mL	++					
SREV	HNO3	PREP	7.5	102		mL	++					
SREV	SCN VOLUME	PREP	0.25	102		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	102		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	102		g	++					

L34674-08

Tag:

Measured: 1/9/2017 10:21:52 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.54	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.043	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.128	101		g	++					
SREV	PAN WEIGHT	X-3050	1.311	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34674-09

Tag:

Measured: 1/9/2017 2:53:14 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	99.11	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.532	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.588	101		g	++					
SREV	PAN WEIGHT	X-3050	1.312	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34674-10

Tag:

Measured: 1/9/2017 7:24:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	99.42	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.116	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.15	101		g	++					
SREV	PAN WEIGHT	X-3050	1.315	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

L34674-11

Tag:

Measured: 1/9/2017 11:55:58 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	97.6	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	8.598	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	8.778	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.293	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L34674-12

Tag:

Measured: 1/10/2017 4:27:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.02	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.096	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.213	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.296	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L34674-13

Tag:

Measured: 1/10/2017 8:58:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.08	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	6.978	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.031	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.296	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L34674-14 **Tag:** **Measured:** **1/10/2017 1:30:04 PM**

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-3050	98.7	101		%	++					
SREV	DILUTION	X-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-3050	7.074	101		g	++					
SREV	H2O2	X-3050	5	101		mL	++					
SREV	HCL	X-3050	5	101		mL	++					
SREV	HNO3	X-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-3050	7.15	101		g	++					
SREV	PAN WEIGHT	X-3050	1.298	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-3050	0.5	101		g	++					

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416048

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/11/2017 15:27
Start Date/Time: 01/11/2017 10:00
End Date/Time: 01/11/2017 17:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG416048CSTD1	NONE	<250		01/11/17 10:00		10.08							
2	WG416048CSTD2	NONE	<250		01/11/17 10:22		7.01							
3	WG416048CSTD3	NONE	<250		01/11/17 10:44		2.05							
4	WG416048ICV	PCN50759	<250		01/11/17 11:06		4.06							
5	WG416048PBS	NONE	<250		01/11/17 11:28		7	2	40	0.5	40	0.5	.00	
6	WG416048LCSS	PCN49919	<250		01/11/17 11:50		7	2	40	0.5	33.5	0.5	8.13	
7	L34446-01	SB-01_02GT (1.5-6.5)	<250		01/11/17 12:12	Moderate	7	2	40	0.5	32.2	0.5	9.75	
8	L34446-01MS	SI141024-2	<250		01/11/17 12:34	Moderate	7	2	40	0.5	29.9	0.5	12.63	
9	L34446-01DUP	NONE	<250		01/11/17 12:56	Moderate	7	2	40	0.5	32.1	0.5	9.88	
10	L34446-03	SB-03_TP-3 (1-5)	<250		01/11/17 13:18	Moderate	7	2	40	0.5	27.1	0.5	16.13	
11	L34446-05	TP-8 (3.5-13)	<250		01/11/17 13:41	Moderate	7	2	40	0.5	26.4	0.5	17.00	
12	L34446-06	TP-9 (7-14)	<250		01/11/17 14:03	Moderate	7	2	40	0.5	26.5	0.5	16.88	
13	L34446-07	TP-12 (7-9)	<250		01/11/17 14:25	Moderate	7	2	40	0.5	25.6	0.5	18.00	
14	L34446-08	TP-14 (3-7)	<250		01/11/17 14:47	Moderate	7	2	40	0.5	17	0.5	28.75	
15	WG416048CCV1	PCN50759	<250		01/11/17 15:09		4.08							
16	L34446-09	TP-20 (12-14)	<250		01/11/17 15:31	Moderate	7	2	40	0.5	22.3	0.5	22.13	
17	L34674-11	SB-01_02GT (1.5-6.5)	<250		01/11/17 15:53	Moderate	7	2	40	0.5	33.2	0.5	8.50	
18	L34674-12	TP-6 (7-10)-DUPLICAT	<250		01/11/17 16:15	Moderate	7	2	40	0.5	38.4	0.5	2.00	
19	L34674-13	TP-20 (12-14)-DUPLIC	<250		01/11/17 16:37	Moderate	7	2	40	0.5	21.4	0.5	23.25	
20	WG416048CCV2	PCN50759	<250		01/11/17 16:59		4.07							

Report Comments: _____

Internal Comments _____

AREV: BCC 1.11.17
Initials, Date

SREV: JRD 1/12/17
Initials, Date

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416048

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/11/2017 15:27
Start Date/Time: 01/11/2017 10:00
End Date/Time: 01/11/2017 17:00

Sample	Login Comments
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-11-17

Approved: BCD
Date: 1/12/17

Analyst: BCC

Workgroup: 416048

Analysis Date: 1/11/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)? BCC 1.11.17	X		X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
0.1 N HCl	50296	5-31-17
0.1 N NaOH	50283	9-30-17
Buffer 2		
Buffer 7		
Buffer 10		

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSC010.07.14.08

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416048

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: Bcc
ACZ Dept: 25
Create Date: 01/11/2017 15:27
Start Date/Time: 1/11/17 10:00a
End Date/Time: 1/11/17 5:00p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG416048CSTD1	NONE					10.08				Bcc 1/11/17			
2	WG416048CSTD2	NONE					7.01							
3	WG416048CSTD3	NONE					2.05							
4	WG416048ICV	PCN50759					4.06							
5	WG416048PBS	NONE					7	2.000	40	0.5	40	0.5		
6	WG416048LCSS	PCN49919									33.5			
7	L34446-01	SB-01_02GT (1.5-6.5)	<250			MOD					~~32.4~~ 32.2			
8	L34446-01MS	SI141024-2									29.9			
9	L34446-01DUP	NONE									32.1			
10	L34446-03	SB-03_TP-3 (1-5)									27.1			
11	L34446-05	TP-8 (3.5-13)									26.4			
12	L34446-06	TP-9 (7-14)									26.5			
13	L34446-07	TP-12 (7-9)									25.6			
14	L34446-08	TP-14 (3-7)									17.0			
15	WG416048CCV1	PCN50759					4.08							
16	L34446-09	TP-20 (12-14)	<250			MOD	7	2.000	40	0.5	22.3	0.5		
17	L34674-11	SB-01_02GT (1.5-6.5)									33.2			
18	L34674-12	TP-6 (7-10)-DUPLICAT									38.4			
19	L34674-13	TP-20 (12-14)-DUPLIC									21.4			
20	WG416048CCV2	PCN50759					4.07							

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG416048

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/11/2017 15:27
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

L34674-1701201346

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416048

Date Reported: 12-Jan-17
Run ID: R1491682
Date Analyzed: 11-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

WG416048ICV

Tag:

Measured: 1/11/2017 11:06:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.06	1		units	++	0.1	0.1			
SREV	PH	REC	102	1		%	++	0.1	0.1			

WG416048PBS

Tag:

Measured: 1/11/2017 11:28:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND		1	U	%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	40	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

WG416048LCSS

Tag:

Measured: 1/11/2017 11:50:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	8.13	1		%	++	0.1	0.5			
SREV	CACO3	REC	113	1		%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	33.5	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-01

Tag:

Measured: 1/11/2017 12:12:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	9.8	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	32.2	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-01MS

Tag: Measured: 1/11/2017 12:34:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	12.63	1		%	++	0.1	0.5			
SREV	CACO3	REC	94	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Moderate		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	29.9	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-01DUP

Tag: Measured: 1/11/2017 12:56:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	9.88	1		%	++	0.1	0.5			
SREV	CACO3	RPD	1	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Moderate		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	32.1	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L34446-03

Tag: Measured: 1/11/2017 1:18:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	16.1	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	27.1	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-05

Tag: Measured: 1/11/2017 1:41:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	17.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	26.4	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-06

Tag: Measured: 1/11/2017 2:03:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	16.9	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	26.5	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-07

Tag: Measured: 1/11/2017 2:25:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	18.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	25.6	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34446-08

Tag: Measured: 1/11/2017 2:47:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	28.8	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	17	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

WG416048CCV1

Tag: Measured: 1/11/2017 3:09:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.08	1		units	++	0.1	0.1			
SREV	PH	REC	102	1		%	++	0.1	0.1			

L34446-09

Tag: Measured: 1/11/2017 3:31:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	22.1	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	22.3	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34674-11

Tag: Measured: 1/11/2017 3:53:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	8.5	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	33.2	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34674-12

Tag: Measured: 1/11/2017 4:15:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	2.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	38.4	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L34674-13

Tag: Measured: 1/11/2017 4:37:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	23.3	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	21.4	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

WG416048CCV2

Tag: Measured: 1/11/2017 4:59:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.07	1		units	++	0.1	0.1			
SREV	PH	REC	102	1		%	++	0.1	0.1			

Organic Matter

QC List Type: QC-ORGMAT
QCListMatClass: SOLID
Bench Sheet List: I-ORGMAT
QC Ref: PBS-LCSS-DUP-CCV-CCB
Group ID: SA-G-ORGMAT
Method Ref: USDA
SOP Ref: SOPSO049

WG416430

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/18/2017 13:25
Start Date/Time: 01/17/2017 13:30
End Date/Time: 01/18/2017 14:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ORGMAT	Organic Matter (%)	Sample Weight (g)	Calc	Dilution	Comments
1	WG416430PBS	NONE	<250		01/17/17 13:30	✔	0	0.5	0	1	
2	WG416430LCSS	PCN45409	<250		01/17/17 14:40	✔	1.998	0.5	0	1	
3	L34445-01	TP-6_7_9 (2-5)	<250		01/17/17 15:50	✔	2.357	0.5	0	1	
4	L34445-01DUP	NONE	<250		01/17/17 17:00	✔	2.351	0.5	0	1	
5	L34445-02	TP-12 (2-4)	<250		01/17/17 18:10	✔	2.975	0.5	0	1	
6	L34445-03	TP-15_16 (2-13)	<250		01/17/17 19:20	✔	1.223	0.5	0	1	
7	L34445-04	TP-20 (1-4)	<250		01/17/17 20:30	✔	2.86	0.5	0	1	
8	L34674-01	SB-06GT (1.5-10)	<250		01/17/17 21:40	✔	2.828	0.5	0	1	
9	L34674-02	SB-07GT (0-4)	<250		01/17/17 22:50	✔	3.04	0.5	0	1	
10	L34674-03	SB-09GT (8-12)	<250		01/18/17 0:00	✔	0.792	0.5	0	1	
11	WG416430CCB1	NONE	<250		01/18/17 1:10	✔	0	0.5	0	1	
12	WG416430CCV1	PCN45434	<250		01/18/17 2:20	✔	2.098	0.5	0	1	
13	L34674-04	SB-09GT (18-22)	<250		01/18/17 3:30	✔	0.565	0.5	0	1	
14	L34674-05	SB-12GT (0-27)	<250		01/18/17 4:40	✔	2.435	0.5	0	1	
15	L34674-06	SB-13AL (0-25)	<250		01/18/17 5:50	✔	2.794	0.5	0	1	
16	L34674-07	SB-14AL (0-15)	<250		01/18/17 7:00	✔	0.461	0.5	0	1	
17	L34674-08	SB-14AL (15-35)	<250		01/18/17 8:10	✔	0.4	0.5	0	1	
18	L34674-09	SB-15AL (0-25)	<250		01/18/17 9:20	✔	1.4	0.5	0	1	
19	L34674-10	SB-15AL (25-50)	<250		01/18/17 10:30	✔	1.274	0.5	0	1	
20	L34674-14	SB-09GT (8-12-DUPLIC	<250		01/18/17 11:40	✔	0.914	0.5	0	1	
21	WG416430CCB2	NONE	<250		01/18/17 12:50	✔	0	0.5	0	1	
22	WG416430CCV2	PCN45434	<250		01/18/17 14:00	✔	2.103	0.5	0	1	

Report Comments: _____

Internal Comments _____

AREV: BCC 1·18·17
Initials, Date

SREV: BD 1/19/17
Initials, Date

Organic Matter

QC List Type: QC-ORGMAT
QCListMatClass: SOLID
Bench Sheet List: I-ORGMAT
QC Ref: PBS-LCSS-DUP-CCV-CCB
Group ID: SA-G-ORGMAT
Method Ref: USDA
SOP Ref: SOPSO049

WG416430

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 01/18/2017 13:25
Start Date/Time: 01/17/2017 13:30
End Date/Time: 01/18/2017 14:00

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34674-1701201346

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-18-17

Approved: TPRD
Date: 1/19/17

Analyst: BCC

Workgroup: 1166430

Analysis Date: 1/17 - 1/18/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?			X
8. Is the appropriate spike in the computer-designated line?			X
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
$K_2Cr_2O_7$	SI170117-1	1-17-18
H_2SO_4	52471	6-23-19

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Organic Matter

QC List Type: QC-ORGMAT
QCListMatClass: SOLID
Bench Sheet List: I-ORGMAT
QC Ref: PBS-LCSS-DUP-CCV-CCB
Group ID: SA-G-ORGMAT
Method Ref: USDA
SOP Ref: SOPSO049

WG416430

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: Bcc
ACZ Dept: 25
Create Date: 01/18/2017 13:25
Start Date/Time: 1/17/17 1:30
End Date/Time: 1/18/17 2:00p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ORGMAT	Organic Matter (%)	Sample Weight (g)	Calc	Dilution	Comments
1	WG416430PBS	NONE				✔	0		0	1	
2	WG416430LCSS	PCN45409				✔	1.998		0	1	
3	L34445-01	TP-6_7_9 (2-5)	C250			✔	2.357	0.500	0	1	
4	L34445-01DUP	NONE				✔	2.351	0.500	0	1	
5	L34445-02	TP-12 (2-4)				✔	2.975	0.500	0	1	
6	L34445-03	TP-15_16 (2-13)				✔	1.223	0.500	0	1	
7	L34445-04	TP-20 (1-4)				✔	2.860	0.500	0	1	
8	L34674-01	SB-06GT (1.5-10)				✔	2.828	0.500	0	1	
9	L34674-02	SB-07GT (0-4)				✔	3.040	0.500	0	1	
10	L34674-03	SB-09GT (8-12)				✔	0.792	0.500	0	1	
11	WG416430CCB1	NONE				✔	0		0	1	
12	WG416430CCV1	PCN45434			Bcc 1/18/17	✔	~~2.210~~ 2.098		0	1	
13	L34674-04	SB-09GT (18-22)	C250			✔	0.565	0.500	0	1	
14	L34674-05	SB-12GT (0-27)				✔	2.435	0.500	0	1	
15	L34674-06	SB-13AL (0-25)				✔	2.794	0.500	0	1	
16	L34674-07	SB-14AL (0-15)				✔	0.461	0.500	0	1	
17	L34674-08	SB-14AL (15-35)				✔	0.400	0.500	0	1	
18	L34674-09	SB-15AL (0-25)				✔	1.400	0.500	0	1	
19	L34674-10	SB-15AL (25-50)				✔	1.224	0.500	0	1	
20	L34674-14	SB-09GT (8-12-DUPLIC				✔	0.914	0.500	0	1	
21	WG416430CCB2	NONE				✔	0		0	1	
22	WG416430CCV2	PCN45434				✔	~~2.244~~ Bcc 1/18/17 2.103		0	1	

Report Comments: CCV Re-checked – values passing after re check
OK'd by technical director

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34674-1701201346

Organic Matter

QC List Type: QC-ORGMAT
QCListMatClass: SOLID
Bench Sheet List: I-ORGMAT
QC Ref: PBS-LCSS-DUP-CCV-CCB
Group ID: SA-G-ORGMAT
Method Ref: USDA
SOP Ref: SOPSO049

WG416430

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/18/2017 13:25
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416430

Date Reported: 19-Jan-17
Run ID: R1493786
Date Analyzed: 17-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

WG416430PBS

Tag: Measured: 1/17/2017 1:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND		1	U	%	++	0.3	1			

WG416430LCSS

Tag: Measured: 1/17/2017 2:40:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND	2	1		%	++	0.3	1			
SREV	ORGANIC MATTER	REC	100	1		%	++	0.3	1			

L34445-01

Tag: Measured: 1/17/2017 3:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.4	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34445-01DUP

Tag: Measured: 1/17/2017 5:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND	2.35	1		%	++	0.3	1			
SREV	ORGANIC MATTER	RPD	2	1		%	++	0.3	1		RA	

L34445-02

Tag: Measured: 1/17/2017 6:10:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	3.0	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34445-03

Tag: Measured: 1/17/2017 7:20:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	1.2	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34445-04

Tag: Measured: 1/17/2017 8:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.9	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-01

Tag: Measured: 1/17/2017 9:40:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.8	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-02

Tag: Measured: 1/17/2017 10:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	3.0	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-03

Tag: Measured: 1/18/2017

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.8	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

WG416430CCB1

Tag: Measured: 1/18/2017 1:10:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND		1	U	%	++	0.3	1			

WG416430CCV1

Tag: Measured: 1/18/2017 2:20:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND	2.1	1		%	++	0.3	1			
SREV	ORGANIC MATTER	REC	105	1		%	++	0.3	1			

L34674-04

Tag: Measured: 1/18/2017 3:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.6	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-05

Tag: Measured: 1/18/2017 4:40:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.4	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-06

Tag: Measured: 1/18/2017 5:50:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	2.8	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-07

Tag: Measured: 1/18/2017 7:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.5	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-08

Tag: Measured: 1/18/2017 8:10:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.4	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-09

Tag: Measured: 1/18/2017 9:20:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	1.4	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-10

Tag: Measured: 1/18/2017 10:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	1.3	1		%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

L34674-14

Tag: Measured: 1/18/2017 11:40:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	CALC	PREP	0	1			++				TB	
SREV	ORGANIC MATTER	ORGMAT	.9	1	B	%	++	0.3	1		RA TB	
NEED	WEIGHT, SAMPLE	PREP	0.5	1		g	++				TB	

WG416430CCB2

Tag: Measured: 1/18/2017 12:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND		1	U	%	++	0.3	1			

WG416430CCV2

Tag: Measured: 1/18/2017 2:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ORGANIC MATTER	FOUND	2.1	1		%	++	0.3	1			
SREV	ORGANIC MATTER	REC	105	1		%	++	0.3	1			

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415420

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 12/29/2016 10:49
Start Date/Time: 12/29/2016 11:00
End Date/Time: 12/30/2016 11:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan And Sample Weight (g)	Dried Sample And Pan Weight (g)	Percent Solid (%)	Percent Moisture (%)	Comments
1	WG415420PBS	NONE	as rec		12/29/16 11:00	1.255	10.43	1.255	.00	100.00	
2	L34674-01	SB-06GT (1.5-10)	as rec		12/29/16 12:36	1.255	9.892	8.679	85.96	14.04	
3	L34674-02	SB-07GT (0-4)	as rec		12/29/16 14:12	1.259	9.697	8.706	88.26	11.74	
4	L34674-03	SB-09GT (8-12)	as rec		12/29/16 15:48	1.271	9.261	8.264	87.52	12.48	
5	L34674-04	SB-09GT (18-22)	as rec		12/29/16 17:24	1.271	9.37	8.063	83.86	16.14	
6	L34674-05	SB-12GT (0-27)	as rec		12/29/16 19:00	1.27	9.771	8.056	79.83	20.17	
7	L34674-06	SB-13AL (0-25)	as rec		12/29/16 20:36	1.269	9.54	8.717	90.05	9.95	
8	L34674-07	SB-14AL (0-15)	as rec		12/29/16 22:12	1.262	9.417	8.083	83.64	16.36	
9	L34674-08	SB-14AL (15-35)	as rec		12/29/16 23:48	1.277	9.544	8.117	82.74	17.26	
10	L34674-09	SB-15AL (0-25)	as rec		12/30/16 1:24	1.277	9.693	9.105	93.01	6.99	
11	L34674-10	SB-15AL (25-50)	as rec		12/30/16 3:00	1.278	9.985	9.405	93.34	6.66	
12	L34674-11	SB-01_02GT (1.5-6.5)	as rec		12/30/16 4:36	1.275	9.992	8.774	86.03	13.97	
13	L34674-12	TP-6 (7-10)-DUPLICAT	as rec		12/30/16 6:12	1.272	9.762	8.074	80.12	19.88	
14	L34674-13	TP-20 (12-14)-DUPLIC	as rec		12/30/16 7:48	1.27	9.381	8.755	92.28	7.72	
15	L34674-14	SB-09GT (8-12-DUPLIC	as rec		12/30/16 9:24	1.266	9.148	8.178	87.69	12.31	
16	L34674-14DUP	NONE	as rec		12/30/16 11:00	1.312	9.127	8.087	86.69	13.31	

Report Comments: _____

Internal Comments _____

AREV: RBT 12/30/16
Initials, Date

SREV: RBT 12/30/16
Initials, Date

PJS

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415420

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 12/29/2016 10:49
Start Date/Time: 12/29/2016 11:00
End Date/Time: 12/30/2016 11:00

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBT
Date: 12/30/16

Approved: RD
Date: 12/30/16

Analyst: RBT

Workgroup: WG415420

Analysis Date: 12/30/16

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5.Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?	✓		
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		✓
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

RBT 12/30/16

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415420

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: [illegible]
ACZ Dept: 25
Create Date: 12/29/2016 10:49
Start Date/Time: 12/29/16 11:00
End Date/Time: 12/30/16 11:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan And Sample Weight (g)	Dried Sample And Pan Weight (g)	Percent Solid (%)	Percent Moisture (%)	Comments
1	WG415420PBS	NONE				1.255	10.438	1.255			
2	L34674-01	SB-06GT (1.5-10)				1.255	9.892	8.679			
3	L34674-02	SB-07GT (0-4)				1.259	9.697	8.706			
4	L34674-03	SB-09GT (8-12)				1.271	9.261	8.244			
5	L34674-04	SB-09GT (18-22)				1.271	9.370	8.063			
6	L34674-05	SB-12GT (0-27)				1.270	9.771	8.056			
7	L34674-06	SB-13AL (0-25)				1.269	9.540	8.717			
8	L34674-07	SB-14AL (0-15)				1.262	9.417	8.083			
9	L34674-08	SB-14AL (15-35)				1.277	9.544	8.117			
10	L34674-09	SB-15AL (0-25)				1.277	9.693	9.105			
11	L34674-10	SB-15AL (25-50)				1.278	9.985	9.405			
12	L34674-11	SB-01_02GT (1.5-6.5)				1.275	9.992	8.774			
13	L34674-12	TP-6 (7-10)-DUPLICAT				1.272	9.762	8.074			
14	L34674-13	TP-20 (12-14)-DUPLIC				1.270	9.381	8.755			
15	L34674-14	SB-09GT (8-12-DUPLIC				1.266	9.148	8.178			
16	L34674-14DUP	NONE				1.312	9.127	8.037			

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG415420

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 12/29/2016 10:49
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

L34674-1701201346

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415420

Date Reported: 30-Dec-16
Run ID: R1488664
Date Analyzed: 29-Dec-16
ICAL Workgroup:
Instrument ID: SOILS

WG415420PBS

Tag:

Measured: 12/29/2016 11:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	1.255	1		g	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	10.43	1		g	++					
SREV	PAN WEIGHT	PREP	1.255	1		g	++					
SREV	PERCENT SOLID	FOUND		1	U	%	++	0.1	0.5			

L34674-01

Tag:

Measured: 12/29/2016 12:36:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.679	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.892	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.255	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	14.0	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	86.0	1		%	++	0.1	0.5		TB	

L34674-02

Tag:

Measured: 12/29/2016 2:12:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.706	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.697	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.259	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	11.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	88.3	1		%	++	0.1	0.5		TB	

L34674-03

Tag:

Measured: 12/29/2016 3:48:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.264	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.261	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.271	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	12.5	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	87.5	1		%	++	0.1	0.5		TB	

L34674-04

Tag:

Measured: 12/29/2016 5:24:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.063	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.37	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.271	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	16.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	83.9	1		%	++	0.1	0.5		TB	

L34674-05

Tag: Measured: 12/29/2016 7:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.056	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.771	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.27	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	20.2	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	79.8	1		%	++	0.1	0.5		TB	

L34674-06

Tag: Measured: 12/29/2016 8:36:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.717	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.54	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.269	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	10.0	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	90.1	1		%	++	0.1	0.5		TB	

L34674-07

Tag: Measured: 12/29/2016 10:12:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.083	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.417	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.262	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	16.4	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	83.6	1		%	++	0.1	0.5		TB	

L34674-08

Tag: Measured: 12/29/2016 11:48:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.117	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.544	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.277	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	17.3	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	82.7	1		%	++	0.1	0.5		TB	

L34674-09

Tag: Measured: 12/30/2016 1:24:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.105	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.693	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.277	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	7.0	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	93.0	1		%	++	0.1	0.5		TB	

L34674-10

Tag: Measured: 12/30/2016 3:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.405	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.985	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.278	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	6.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	93.3	1		%	++	0.1	0.5		TB	

L34674-11

Tag: Measured: 12/30/2016 4:36:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.774	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.992	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.275	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	14.0	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	86.0	1		%	++	0.1	0.5		TB	

L34674-12

Tag: Measured: 12/30/2016 6:12:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.074	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.762	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.272	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	19.9	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	80.1	1		%	++	0.1	0.5		TB	

L34674-13

Tag: Measured: 12/30/2016 7:48:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.755	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.381	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.27	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	7.7	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	92.3	1		%	++	0.1	0.5		TB	

L34674-14

Tag: Measured: 12/30/2016 9:24:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.178	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.148	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.266	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	12.3	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	87.7	1		%	++	0.1	0.5		TB	

L34674-14DUP

Tag: Measured: 12/30/2016 11:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	8.087	1		g	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	9.127	1		g	++					
SREV	PAN WEIGHT	PREP	1.312	1		g	++					
SREV	PERCENT MOISTURE	FOUND	13.31	1		%	++	0.1	0.5			
SREV	PERCENT MOISTURE	RPD	8	1		%	++	0.1	0.5			
SREV	PERCENT SOLID	FOUND	86.69	1		%	++	0.1	0.5			
SREV	PERCENT SOLID	RPD	1	1		%	++	0.1	0.5			

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG416138

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/12/2017 16:34
Start Date/Time: 01/12/2017 16:35
End Date/Time: 01/18/2017 16:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	S FORMS MOD	Sulfur HCl Residue (%)	Sulfur HNO3 Residue (%)	Sulfur Pyritic Sulfide (%)	Sulfur Organic Residual (%)	Sulfur Sulfate (%)	Total Sulfur minus Sulfate (%)	Sulfur Total (%)	Comments
1	WG416138PBS	NONE	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
2	WG416138LCSS	PCN51462	<250		01/12/17 16:35	☑	0.44	0.28	0.16	0.28	3.23	0.44	3.67	
3	L34446-01	SB-01_02GT (1.5-6.5)	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
4	L34446-01MS	PCN49456	<250		01/12/17 16:35	☑	0	0	0	0	1.16	0	1.16	
5	L34446-01DUP	NONE	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
6	L34446-02	SB-07GT (4-21)	<250		01/12/17 16:35	☑	0.04	0.02	0.02	0.02	0.02	0.04	0.06	
7	L34446-03	SB-03_TP-3 (1-5)	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
8	L34446-04	TP-6 (7-10)	<250		01/12/17 16:35	☑	0	0	0	0	0.02	0	0.02	
9	L34446-05	TP-8 (3.5-13)	<250		01/12/17 16:35	☑	0.54	0.01	0.53	0.01	0.2	0.54	0.74	
10	L34446-06	TP-9 (7-14)	<250		01/12/17 16:35	☑	0.91	0.02	0.89	0.02	0.08	0.91	0.99	
11	L34446-07	TP-12 (7-9)	<250		01/12/17 16:35	☑	0	0	0	0	0.02	0	0.02	
12	L34446-08	TP-14 (3-7)	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
13	L34446-09	TP-20 (12-14)	<250		01/12/17 16:35	☑	0.09	0	0.09	0	0.05	0.09	0.14	
14	L34674-11	SB-01_02GT (1.5-6.5)	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
15	L34674-12	TP-6 (7-10)-DUPLICAT	<250		01/12/17 16:35	☑	0	0	0	0	0	0	0	
16	L34674-13	TP-20 (12-14)-DUPLIC	<250		01/12/17 16:35	☑	0.17	0	0.17	0	0.08	0.17	0.25	

Report Comments: _____

Internal Comments _____

AREV: CRA 1-19-17
Initials, Date

SREV: BD 1/19/17
Initials, Date

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG416138

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/12/2017 16:34
Start Date/Time: 01/12/2017 16:35
End Date/Time: 01/18/2017 16:00

Sample	Login Comments
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: CRA
Date: 1-19-17

Approved: BRD
Date: 1/19/17

Analyst: CRA

Workgroup: 416138

Analysis Date: 1-18-17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?			X
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
2:3 HCl	SI170113-3	1-13-18
1:7 HNO3	SI161220-1	12-20-17
silver nitrate	SI161118-2	11-18-17
nesslers	52122	8-30-17

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALCHK	0.2010	soils/ore	1/18/2017 10:30:35 AM	32.623	0.018662	A01
502-814	CALCHK	0.1930	soils/ore	1/18/2017 10:35:50 AM	0.27817	23.316	A02
LCSS	CALCHK	0.2000	soils/ore	1/18/2017 10:41:25 AM	3.8427	3.6670	A04
502-813	CALCHK	0.2030	soils/ore	1/18/2017 10:45:04 AM	1.2075	1.0844	A06
Blank	CALCHK	0.2020	soils/ore	1/18/2017 10:47:52 AM	0.0010210	-0.011873	A05
LCSS	CALCHK	0.2050	soils/ore	1/18/2017 12:51:56 PM	3.7793	3.5784	D10
Blank	CALCHK	0.1910	soils/ore	1/18/2017 12:54:56 PM	0.0019022	-0.0099433	E01
LCSS	ST	0.2030	soils/ore	1/18/2017 1:11:49 PM	3.6709	3.6388	A01
L34446-01	ST	0.2030	soils/ore	1/18/2017 1:19:18 PM	0.0047814	0.83092	A02
L34446-01MS	ST	0.2000	soils/ore	1/18/2017 1:23:37 PM	1.1557	1.8304	A03
L34446-01DUP	ST	0.2030	soils/ore	1/18/2017 1:26:37 PM	0.0036501	0.87274	A04
L34446-02	ST	0.2000	soils/ore	1/18/2017 1:29:37 PM	0.063616	1.5417	A05
L34446-03	ST	0.1920	soils/ore	1/18/2017 1:32:48 PM	0.0057758	2.3094	A06
L34446-04	ST	0.1970	soils/ore	1/18/2017 1:35:41 PM	0.017093	0.25351	A07
L34446-05	ST	0.1920	soils/ore	1/18/2017 1:38:41 PM	0.74318	2.1003	A08
L34446-06	ST	0.1990	soils/ore	1/18/2017 1:41:52 PM	0.98686	2.2211	A09
L34446-07	ST	0.2010	soils/ore	1/18/2017 1:44:51 PM	0.022427	2.6341	A10
L34446-08	ST	0.2060	soils/ore	1/18/2017 1:47:50 PM	0.0070068	3.5771	B01
L34446-09	ST	0.2070	soils/ore	1/18/2017 1:50:50 PM	0.13900	2.5350	B02
L34674-11	ST	0.1960	soils/ore	1/18/2017 1:54:01 PM	0.0044501	0.63788	B03
L34674-12	ST	0.1950	soils/ore	1/18/2017 1:56:50 PM	0.0049153	0.16135	B04
L34674-13	ST	0.2040	soils/ore	1/18/2017 1:59:50 PM	0.24514	2.8997	B05
LCSS	CALCHK	0.1920	soils/ore	1/18/2017 2:03:13 PM	3.6329	3.6468	B06
Blank	CALCHK	0.1970	soils/ore	1/18/2017 2:06:26 PM	-0.0055591	-0.0050240	B07
LCSS	HCl	0.2020	soils/ore	1/18/2017 2:22:14 PM	0.43965	3.4697	A01
L34446-01	HCl	0.2000	soils/ore	1/18/2017 2:28:20 PM	-0.0012526	0.19119	A02
L34446-01DUP	HCl	0.1990	soils/ore	1/18/2017 2:30:31 PM	0.000029461	0.18179	A03
L34446-02	HCl	0.2040	soils/ore	1/18/2017 2:32:22 PM	0.042828	1.2539	A04
L34446-03	HCl	0.2000	soils/ore	1/18/2017 2:34:33 PM	0.00062796	0.75801	A05
L34446-04	HCl	0.1990	soils/ore	1/18/2017 2:36:26 PM	0.0070280	0.23225	A06
L34446-05	HCl	0.2030	soils/ore	1/18/2017 2:38:40 PM	0.53646	0.27550	A07
L34446-06	HCl	0.2030	soils/ore	1/18/2017 2:40:55 PM	0.91404	0.20558	A08
L34446-07	HCl	0.2010	soils/ore	1/18/2017 2:43:06 PM	0.0088283	0.62676	A09
L34446-08	HCl	0.2040	soils/ore	1/18/2017 2:45:19 PM	-0.00014175	0.19052	A10
L34446-09	HCl	0.1990	soils/ore	1/18/2017 2:47:44 PM	0.093036	0.28982	B01
L34674-11	HCl	0.1990	soils/ore	1/18/2017 2:50:12 PM	-0.0012483	0.20040	B02
L34674-12	HCl	0.2030	soils/ore	1/18/2017 2:52:28 PM	0.0018206	0.16335	B03
L34674-13	HCl	0.1960	soils/ore	1/18/2017 2:54:28 PM	0.16803	0.33008	B04
LCSS	CALCHK	0.1990	soils/ore	1/18/2017 2:57:19 PM	3.5801	3.6741	B05
Blank	CALCHK	0.2010	soils/ore	1/18/2017 2:59:30 PM	-0.000074520	-0.013991	B06
LCSS	HNO3	0.1990	soils/ore	1/18/2017 3:15:15 PM	0.27565	3.3156	A01
L34446-01	HNO3	0.2020	soils/ore	1/18/2017 3:17:13 PM	0.0028577	0.14038	A02
L34446-01DUP	HNO3	0.2000	soils/ore	1/18/2017 3:19:24 PM	0.0012069	0.10954	A03
L34446-02	HNO3	0.1990	soils/ore	1/18/2017 3:21:15 PM	0.019851	1.1677	A04
L34446-03	HNO3	0.2010	soils/ore	1/18/2017 3:23:26 PM	0.0015206	0.38654	A05
L34446-04	HNO3	0.1980	soils/ore	1/18/2017 3:25:20 PM	0.0032678	0.14115	A06
L34446-05	HNO3	0.2010	soils/ore	1/18/2017 3:27:31 PM	0.010790	0.18561	A07
L34446-06	HNO3	0.1990	soils/ore	1/18/2017 3:29:26 PM	0.018288	0.18314	A08
L34446-07	HNO3	0.1960	soils/ore	1/18/2017 3:31:37 PM	0.0050174	0.36018	A09
L34446-08	HNO3	0.2020	soils/ore	1/18/2017 3:34:04 PM	0.0023800	0.091660	A10
L34446-09	HNO3	0.2070	soils/ore	1/18/2017 3:36:15 PM	0.0036639	0.22599	B01
L34674-11	HNO3	0.1970	soils/ore	1/18/2017 3:38:26 PM	0.0024456	0.12707	B02
L34674-12	HNO3	0.1960	soils/ore	1/18/2017 3:40:37 PM	0.0020005	0.13222	B03

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
L34674-13	HNO3	0.2000	soils/ore	1/18/2017 3:42:35 PM	0.0057722	0.22671	B04
LCSS	CALCHK	0.2050	soils/ore	1/18/2017 3:47:46 PM	3.5983	3.7338	B05
Blank	CALCHK	0.2000	soils/ore	1/18/2017 3:49:46 PM	0.000089965	-0.0078375	B06

Element	Average	Std. Deviation	RSD	Count
Mass	0.1999	0.004	1.869	56
Sulfur %	1.1103	4.43674	399.6	56
Carbon %	1.5335	3.24259	211.4	56

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALIBRATE	0.1500	soils/ore	1/13/2017 10:55:17 AM	33.394	0.0019411	A02
High Sulfur	CALIBRATE	0.3500	soils/ore	1/13/2017 11:03:22 AM	32.695	0.0094383	A10
502-814	CALIBRATE	0.2500	soils/ore	1/13/2017 11:06:47 AM	0.34115	22.653	A04
502-814	CALIBRATE	0.1500	soils/ore	1/13/2017 11:09:58 AM	0.33399	22.347	A05
502-814	CALIBRATE	0.3500	soils/ore	1/13/2017 11:12:57 AM	0.33997	22.619	A06
502-813	CALIBRATE	0.2500	soils/ore	1/13/2017 11:17:21 AM	1.3270	1.0742	A07
502-813	CALIBRATE	0.1500	soils/ore	1/13/2017 11:20:43 AM	1.3041	1.0756	A08
502-813	CALIBRATE	0.3500	soils/ore	1/13/2017 11:24:54 AM	1.3193	1.0668	A09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2500	0.09	37.03	8
Sulfur %	8.8819	14.9217	168.0	8
Carbon %	8.8558	11.3402	128.1	8

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG416138

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/12/2017 16:34
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SFORMSMOD	Sulfur HCl Residue (%)	Sulfur HNO3 Residue (%)	Sulfur Pyritic Sulfide (%)	Sulfur Organic Residual (%)	Sulfur Sulfate (%)	Total Sulfur minus Sulfate (%)	Sulfur Total (%)	Comments
1	WG416138PBS	NONE				✓	—	—						
2	WG416138LCSS	PCN51462				✓	0.202	0.199						
3	L34446-01	SB-01_02GT (1.5-6.5)				✓	0.200	0.202						
4	L34446-01MS	PCN49456				✓	—	—						
5	L34446-01DUP	NONE				✓	0.199	0.200						
6	L34446-02	SB-07GT (4-21)				✓	0.204	0.199						
7	L34446-03	SB-03_TP-3 (1-5)				✓	0.200	0.201						
8	L34446-04	TP-6 (7-10)				✓	0.199	0.198						
9	L34446-05	TP-8 (3.5-13)				✓	0.203	0.201						
10	L34446-06	TP-9 (7-14)				✓	0.203	0.199						
11	L34446-07	TP-12 (7-9)				✓	0.201	0.196						
12	L34446-08	TP-14 (3-7)				✓	0.204	0.202						
13	L34446-09	TP-20 (12-14)				✓	0.199	0.207						
14	L34674-11	SB-01_02GT (1.5-6.5)				✓	0.199	0.197						
15	L34674-12	TP-6 (7-10)-DUPLICAT				✓	0.203	0.196						
16	L34674-13	TP-20 (12-14)-DUPLIC				✓	0.196	0.200						

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG416138

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/12/2017 16:34
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416138

Date Reported: 19-Jan-17
Run ID: R1494007
Date Analyzed: 12-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

L34446-01

Tag:

Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-01DUP

Tag:

Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	RPD	0	1		%	++	0.01	0.1		RA	
SREV	SULFUR PYRITIC SULFIDE	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	RPD	0	1		%	++	0.01	0.1		RA	
SREV	SULFUR SULFATE	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR SULFATE	RPD	0	1		%	++	0.01	0.1		RA	
SREV	SULFUR TOTAL	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR TOTAL	RPD	0	1		%	++	0.01	0.1		RA	
SREV	TOTAL SULFUR MINUS SULFATE	FOUND		1	U	%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	RPD	0	1		%	++	0.01	0.1		RA	

L34446-01MS

Tag:

Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR SULFATE	PREP	1.16	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	FOUND	1.16	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	87	1		%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	PREP	0	1		%	++	0.01	0.1			

L34446-02

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.04	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.06	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.04	1	B	%	++	0.01	0.1		RA TB	

L34446-03

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-04

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-05

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.54	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.01	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.01	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.53	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.20	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.74	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.54	1		%	++	0.01	0.1		RA TB	

L34446-06

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.91	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.89	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.08	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.99	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.91	1		%	++	0.01	0.1		RA TB	

L34446-07

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-08

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34446-09

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.09	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.09	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.05	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.14	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.09	1	B	%	++	0.01	0.1		RA TB	

L34674-11

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34674-12

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L34674-13

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.17	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.17	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.08	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.25	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.17	1		%	++	0.01	0.1		RA TB	

WG416138LCSS

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0.44	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0.28	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	PREP	0.28	1		%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	PREP	0.16	1		%	++	0.01	0.1			
SREV	SULFUR SULFATE	PREP	3.23	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	FOUND	3.67	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	96	1		%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	PREP	0.44	1		%	++	0.01	0.1			

WG416138PBS

Tag: Measured: 1/12/2017 4:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND		1	U	%	++	0.01	0.1			

Sulfur total

QC List Type: QC-S-TOTAL
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-TOTAL
Method Ref:
SOP Ref: SOPSO23

WG416470

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/18/2017 17:45
Start Date/Time: 01/18/2017 10:30
End Date/Time: 01/18/2017 17:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ST	Sulfur Total (%)	Comments
1	WG416470PBS	NONE	<250		01/18/17 10:30	✓	0	
2	WG416470LCSS	PCN52722	<250		01/18/17 10:53	✓	3.5	
3	L34445-01	TP-6_7_9 (2-5)	<250		01/18/17 11:16	✓	0	
4	L34445-01MS	PCN49456	<250		01/18/17 11:40	✓	1.24	
5	L34445-01DUP	NONE	<250		01/18/17 12:03	✓	0.01	
6	L34445-02	TP-12 (2-4)	<250		01/18/17 12:26	✓	0	
7	L34445-03	TP-15_16 (2-13)	<250		01/18/17 12:50	✓	0.01	
8	L34445-04	TP-20 (1-4)	<250		01/18/17 13:13	✓	0.03	
9	L34674-01	SB-06GT (1.5-10)	<250		01/18/17 13:36	✓	0.02	
10	L34674-02	SB-07GT (0-4)	<250		01/18/17 14:00	✓	0	
11	L34674-03	SB-09GT (8-12)	<250		01/18/17 14:23	✓	0	
12	L34674-04	SB-09GT (18-22)	<250		01/18/17 14:46	✓	0	
13	L34674-05	SB-12GT (0-27)	<250		01/18/17 15:10	✓	0.07	
14	L34674-06	SB-13AL (0-25)	<250		01/18/17 15:33	✓	0.02	
15	L34674-07	SB-14AL (0-15)	<250		01/18/17 15:56	✓	0	
16	L34674-08	SB-14AL (15-35)	<250		01/18/17 16:20	✓	0	
17	L34674-09	SB-15AL (0-25)	<250		01/18/17 16:43	✓	0	
18	L34674-10	SB-15AL (25-50)	<250		01/18/17 17:06	✓	0.01	
19	L34674-14	SB-09GT (8-12-DUPLIC	<250		01/18/17 17:30	✓	0	

Report Comments: _____

Internal Comments _____

AREV: CRA 1-19-17
Initials, Date

SREV: BRD 1/19/17
Initials, Date

Sulfur total

QC List Type: QC-S-TOTAL
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-TOTAL
Method Ref:
SOP Ref: SOPSO23

WG416470

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/18/2017 17:45
Start Date/Time: 01/18/2017 10:30
End Date/Time: 01/18/2017 17:30

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: CRA
Date: 1-19-17

Approved: RJO
Date: 1/19/17

Analyst: CRA

Workgroup: 416470

Analysis Date: 1-18-17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?			X
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALCHK	0.2010	soils/ore	1/18/2017 10:30:35 AM	32.623	0.018662	A01
502-813	CALCHK	0.2040	soils/ore	1/18/2017 10:39:01 AM	1.1952	1.0058	A03
LCSS	CALCHK	0.2000	soils/ore	1/18/2017 10:41:25 AM	3.8427	3.6670	A04
502-813	CALCHK	0.2030	soils/ore	1/18/2017 10:45:04 AM	1.2075	1.0844	A06
LCSS	CALCHK	0.2050	soils/ore	1/18/2017 3:47:46 PM	3.5983	3.7338	B05
Blank	CALCHK	0.2000	soils/ore	1/18/2017 3:49:46 PM	0.000089965	-0.0078375	B06
LCSS	TC/ST	0.2070	soils/ore	1/18/2017 3:54:18 PM	3.5012	3.6588	A01
L34445-01	TC/ST	0.1980	soils/ore	1/18/2017 3:56:30 PM	0.0094041	1.2857	A02
L34445-01DUP	TC/ST	0.2040	soils/ore	1/18/2017 3:58:42 PM	0.012725	1.2754	A03
L34445-02	TC/ST	0.2030	soils/ore	1/18/2017 4:00:40 PM	-0.0090165	2.9188	A04
L34445-03	TC/ST	0.2030	soils/ore	1/18/2017 4:02:58 PM	0.012985	0.71402	A05
L34445-04	TC/ST	0.2060	soils/ore	1/18/2017 4:05:13 PM	0.025136	1.5220	A06
L34674-01	TC/ST	0.2060	soils/ore	1/18/2017 4:07:25 PM	0.017401	1.8554	A07
L34674-02	TC/ST	0.2010	soils/ore	1/18/2017 4:09:36 PM	0.0015896	1.6846	A08
L34674-03	TC/ST	0.1960	soils/ore	1/18/2017 4:11:48 PM	0.00086695	0.47934	A09
L34674-04	TC/ST	0.1920	soils/ore	1/18/2017 4:13:45 PM	-0.0047724	0.28289	A10
L34674-05	TC/ST	0.1990	soils/ore	1/18/2017 4:16:09 PM	0.068280	1.7890	B01
L34674-06	TC/ST	0.1980	soils/ore	1/18/2017 4:18:20 PM	0.019054	1.5941	B02
L34674-07	TC/ST	0.1940	soils/ore	1/18/2017 4:20:39 PM	-0.0018712	1.0992	B03
L34674-08	TC/ST	0.1940	soils/ore	1/18/2017 4:23:28 PM	0.0054369	0.78273	B04
L34674-09	TC/ST	0.1930	soils/ore	1/18/2017 4:25:42 PM	0.0073698	0.87283	B05
L34674-10	TC/ST	0.2030	soils/ore	1/18/2017 4:27:59 PM	0.010034	0.95580	B06
L34674-14	TC/ST	0.2050	soils/ore	1/18/2017 4:30:10 PM	0.0070898	0.60189	B07
LCSS	CALCHK	0.1970	soils/ore	1/18/2017 4:33:30 PM	3.4606	3.7054	B08
Blank	CALCHK	0.2000	soils/ore	1/18/2017 4:35:30 PM	0.000050126	-0.0021143	B09
L34445-01MS	ST	0.2000	soils/ore	1/18/2017 5:21:36 PM	1.2444	2.3604	A10
LCSS	CALCHK	0.2020	soils/ore	1/18/2017 5:24:49 PM	3.6922	3.7862	B01
Blank	CALCHK	0.2000	soils/ore	1/18/2017 5:26:48 PM	-0.00069982	0.0084025	B02

see below for MS.

Element	Average	Std. Deviation	RSD	Count
Mass	0.2005	0.004	2.052	28
Sulfur %	1.9481	6.17058	316.7	28
Carbon %	1.5262	1.25017	81.92	28

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALIBRATE	0.1500	soils/ore	1/13/2017 10:55:17 AM	33.394	0.0019411	A02
High Sulfur	CALIBRATE	0.3500	soils/ore	1/13/2017 11:03:22 AM	32.695	0.0094383	A10
502-814	CALIBRATE	0.2500	soils/ore	1/13/2017 11:06:47 AM	0.34115	22.653	A04
502-814	CALIBRATE	0.1500	soils/ore	1/13/2017 11:09:58 AM	0.33399	22.347	A05
502-814	CALIBRATE	0.3500	soils/ore	1/13/2017 11:12:57 AM	0.33997	22.619	A06
502-813	CALIBRATE	0.2500	soils/ore	1/13/2017 11:17:21 AM	1.3270	1.0742	A07
502-813	CALIBRATE	0.1500	soils/ore	1/13/2017 11:20:43 AM	1.3041	1.0756	A08
502-813	CALIBRATE	0.3500	soils/ore	1/13/2017 11:24:54 AM	1.3193	1.0668	A09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2500	0.09	37.03	8
Sulfur %	8.8819	14.9217	168.0	8
Carbon %	8.8558	11.3402	128.1	8

Sulfur total

QC List Type: QC-S-TOTAL
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-TOTAL
Method Ref:
SOP Ref: SOPSO23

WG416470

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/18/2017 17:45
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ST	Sulfur Total (%)	Comments
1	WG416470PBS	NONE				✓		
2	WG416470LCSS	PCN52722				✓		
3	L34445-01	TP-6_7_9 (2-5)				✓		
4	L34445-01MS	PCN49456				✓		
5	L34445-01DUP	NONE				✓		
6	L34445-02	TP-12 (2-4)				✓		
7	L34445-03	TP-15_16 (2-13)				✓		
8	L34445-04	TP-20 (1-4)				✓		
9	L34674-01	SB-06GT (1.5-10)				✓		
10	L34674-02	SB-07GT (0-4)				✓		
11	L34674-03	SB-09GT (8-12)				✓		
12	L34674-04	SB-09GT (18-22)				✓		
13	L34674-05	SB-12GT (0-27)				✓		
14	L34674-06	SB-13AL (0-25)				✓		
15	L34674-07	SB-14AL (0-15)				✓		
16	L34674-08	SB-14AL (15-35)				✓		
17	L34674-09	SB-15AL (0-25)				✓		
18	L34674-10	SB-15AL (25-50)				✓		
19	L34674-14	SB-09GT (8-12-DUPLIC				✓		

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Sulfur total

QC List Type: QC-S-TOTAL
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-TOTAL
Method Ref:
SOP Ref: SOPSO23

WG416470

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/18/2017 17:45
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416470

Date Reported: 19-Jan-17
Run ID: R1493989
Date Analyzed: 18-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

WG416470PBS

Tag: Measured: 1/18/2017 10:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND		1	U	%	++	0.01	0.1			

WG416470LCSS

Tag: Measured: 1/18/2017 10:53:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND	3.5	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	92	1		%	++	0.01	0.1			

L34445-01

Tag: Measured: 1/18/2017 11:16:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34445-01MS

Tag: Measured: 1/18/2017 11:40:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND	1.24	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	93	1		%	++	0.01	0.1			

L34445-01DUP

Tag: Measured: 1/18/2017 12:03:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND	0.01	1	B	%	++	0.01	0.1			
SREV	SULFUR TOTAL	RPD	200	1	B	%	ALRT	0.01	0.1		RA	

L34445-02

Tag: Measured: 1/18/2017 12:26:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34445-03

Tag: Measured: 1/18/2017 12:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.01	1	B	%	++	0.01	0.1		RA TB	

L34445-04

Tag: Measured: 1/18/2017 1:13:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.03	1	B	%	++	0.01	0.1		RA TB	

L34674-01

Tag: Measured: 1/18/2017 1:36:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.02	1	B	%	++	0.01	0.1		RA TB	

L34674-02 Tag: Measured: 1/18/2017 2:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-03 Tag: Measured: 1/18/2017 2:23:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-04 Tag: Measured: 1/18/2017 2:46:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-05 Tag: Measured: 1/18/2017 3:10:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.07	1	B	%	++	0.01	0.1		RA TB	

L34674-06 Tag: Measured: 1/18/2017 3:33:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.02	1	B	%	++	0.01	0.1		RA TB	

L34674-07 Tag: Measured: 1/18/2017 3:56:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-08 Tag: Measured: 1/18/2017 4:20:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-09 Tag: Measured: 1/18/2017 4:43:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

L34674-10 Tag: Measured: 1/18/2017 5:06:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T	.01	1	B	%	++	0.01	0.1		RA TB	

L34674-14 Tag: Measured: 1/18/2017 5:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	S-T		1	U	%	++	0.01	0.1		RA TB	

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG415921

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 01/10/2017 8:28
Start Date/Time: 01/10/2017 8:30
End Date/Time: 01/11/2017 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	ECSP	PHSP	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
1	WG415921CSTD1	NONE	<2000			01/11/17 6:21	✓	✓	✓	2000	10.06								18.8	
2	WG415921CSTD2	NONE	<2000			01/11/17 7:34	✓	✓	✓	2000	6.99								18.9	
3	WG415921CSTD3	NONE	<2000			01/11/17 8:47	✓	✓	✓	2000	2.04								19	
4	WG415921ICV	PCN50759	<2000			01/11/17 9:59	✓	✓	✓	2000	3.98								18.9	
5	L34445-01	TP-6_7_9 (2-5)	<2000			01/10/17 8:30	✓	✓	✓	2000	6.68	164.3		0.1643	1.325	12.335	8.673	49.84	19.9	
6	L34445-02	TP-12 (2-4)	<2000			01/10/17 9:42	✓	✓	✓	2000	7.45	364		0.364	1.305	13.935	9.611	52.06	19.7	
7	L34445-03	TP-15_16 (2-13)	<2000			01/10/17 10:55	✓	✓	✓	2000	7.02	180.6		0.1806	1.32	15.375	11.073	44.11	19.5	
8	L34445-04	TP-20 (1-4)	<2000			01/10/17 12:08	✓	✓	✓	2000	6.96	125.1		0.1251	1.31	11.191	7.883	50.33	19.9	
9	L34445-04DUP	NONE	<2000			01/10/17 13:21	✓	✓	✓	2000	6.99	123.1		0.1231	1.329	11.097	7.764	51.79	19.8	
10	L34674-01	SB-06GT (1.5-10)	<2000			01/10/17 14:34	✓	✓	✓	2000	7	374		0.374	1.289	10.376	7.304	51.07	20.2	
11	L34674-02	SB-07GT (0-4)	<2000			01/10/17 15:47	✓	✓	✓	2000	6.5	174.4		0.1744	1.288	8.962	6.388	50.47	19.8	
12	L34674-03	SB-09GT (8-12)	<2000			01/10/17 16:59	✓	✓	✓	2000	7.34	280		0.28	1.296	11.815	8.673	42.59	20.1	
13	L34674-04	SB-09GT (18-22)	<2000			01/10/17 18:12	✓	✓	✓	2000	7.27	230		0.23	1.29	10.743	7.386	55.07	20.2	
14	L34674-05	SB-12GT (0-27)	<2000			01/10/17 19:25	✓	✓	✓	2000	7.33	356		0.356	1.3	11.974	8.552	47.19	20.2	
15	WG415921CCV1	PCN50759	<2000			01/11/17 3:55	✓	✓	✓	2000	4.01								19	
16	L34674-06	SB-13AL (0-25)	<2000			01/10/17 20:38	✓	✓	✓	2000	6.88	402		0.402	1.301	8.328	6.62	32.11	20.2	
17	L34674-07	SB-14AL (0-15)	<2000			01/10/17 21:51	✓	✓	✓	2000	7.99	329		0.329	1.302	8.998	7	35.06	20.2	
18	L34674-08	SB-14AL (15-35)	<2000			01/10/17 23:04	✓	✓	✓	2000	7.7	415		0.415	1.308	10.07	7.402	43.78	20.1	
19	L34674-09	SB-15AL (0-25)	<2000			01/11/17 0:17	✓	✓	✓	2000	6.89	235		0.235	1.293	11.561	9.035	32.63	20.3	

Report Comments: _____

Internal Comments _____

AREV: RBT 1/16/17
Initials, Date

SREV: DRD 1/17/17
Initials, Date

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG415921

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 01/10/2017 8:28
Start Date/Time: 01/10/2017 8:30
End Date/Time: 01/11/2017 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	ECSP	PHSP	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
20	L34674-10	SB-15AL (25-50)	<2000			01/11/17 1:29	✔	✔		2000	7.02	239		0.239	1.286	9.31	9.056	3.27	20	
21	L34674-14	SB-09GT (8-12-DUPLIC	<2000			01/11/17 2:42	✔	✔	✔	2000	7.49	242		0.242	1.294	11.235	6.781	81.17	20.2	
22	WG415921CCV2	PCN50759	<2000			01/11/17 5:08	✔	✔	✔	2000	4.05								19.2	

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBT
Date: 1/11/17

Approved: JRD
Date: 1/17/17

Analyst: RBT

Workgroup: WG415921

Analysis Date: 1/11/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?	✓		
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?	✓		
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
Buffer 2	50775	11/31/18
7	49402	7/31/17
10	51935	4/30/18
E.C. Standard	51546	12/31/17
E.C. LCSS	51566	4/30/18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.02.14.08

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG415921

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: RST
ACZ Dept: 25
Create Date: 01/10/2017 8:28
Start Date/Time: 1/10/17 8:30
End Date/Time: 1/11/17 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	ECSP	PHSP	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
										RST 1/11/17					RST 1/11/17					
1	WG415921CSTD1	NONE					✓	✓	✓	10.06									18.8	
2	WG415921CSTD2	NONE					✓	✓	✓	6.99									19.9	
3	WG415921CSTD3	NONE					✓	✓	✓	2.04									19.0	
4	WG415921ICV	PCN50759					✓	✓	✓	3.98									18.9	
5	L34445-01	TP-6_7_9 (2-5)					✓	✓	✓	6.68	164.3			.1643	1.325	12.335	8.673		19.9	
6	L34445-02	TP-12 (2-4)					✓	✓	✓	7.45	364			.364	1.305	13.935	9.611		19.7	
7	L34445-03	TP-15_16 (2-13)					✓	✓	✓	7.02	180.6			.1806	1.320	15.375	11.073		19.5	
8	L34445-04	TP-20 (1-4)					✓	✓	✓	6.96	125.1			.251	1.310	11.191	7.893		19.9	
9	L34445-04DUP	NONE					✓	✓	✓	6.99	123.1			.1231	1.329	10.576	7.764		19.8	
10	L34674-01	SB-06GT (1.5-10)					✓	✓	✓	7.00	374			.374	1.289	1.259	7.304		20.2	
11	L34674-02	SB-07GT (0-4)					✓	✓	✓	6.50	174.4			.1744	1.288	8.962	6.388		19.8	
12	L34674-03	SB-09GT (8-12)					✓	✓	✓	7.34	280			.280	1.296	11.815	8.673		20.1	
13	L34674-04	SB-09GT (18-22)					✓	✓	✓	7.27	230			.230	1.290	10.743	7.386		20.2	
14	L34674-05	SB-12GT (0-27)					✓	✓	✓	7.33	356			.356	1.300	11.974	8.652		20.2	
15	WG415921CCV1	PCN50759					✓	✓	✓	4.01					—	—	—		19.0	
16	L34674-06	SB-13AL (0-25)					✓	✓	✓	6.86	402			.402	1.301	8.329	6.620		20.2	
17	L34674-07	SB-14AL (0-15)					✓	✓	✓	7.99	329			.329	1.302	8.998	7.000		20.2	
18	L34674-08	SB-14AL (15-35)					✓	✓	✓	7.70	415			.415	1.308	10.020	7.402		20.1	
19	L34674-09	SB-15AL (0-25)					✓	✓	✓	6.99	235			.235	1.293	11.561	9.035		20.3	

RST 1/10/17

Report Comments: PBS: Pan | Wet | Dry Sample
1.330 | 8.703 | 1.330

Internal Comments

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG415921

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/10/2017 8:28
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	ECSP	PHSP	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
20	L34674-10	SB-15AL (25-50)					☑	☑	☑		7.02		239	1.236	1.291	9.310	9.056		20.0	
21	L34674-14	SB-09GT (8-12-DUPLIC					☑	☑	☑		7.49		242	~~1.201~~	~~1.299~~	11.235	6.181		20.2	
22	WG415921CCV2	PCN50759					☑	☑	☑		4.05				1.294				19.2	

EDT 1/11/17 .239

.242 1/10/17

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415921

Date Reported: 17-Jan-17
Run ID: R1491387
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

L34445-01

Tag:

Measured: 1/10/2017 8:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.164	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	164.3	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.673	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.325	1			++				TB	
SREV	PH	PH-SP	6.7	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	49.8	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.9	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	12.335	1			++				TB	

L34445-02

Tag:

Measured: 1/10/2017 9:42:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.364	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	364	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.611	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.305	1			++				TB	
SREV	PH	PH-SP	7.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	52.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.7	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	13.935	1			++				TB	

L34445-03

Tag:

Measured: 1/10/2017 10:55:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.181	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	180.6	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	11.073	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.32	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	44.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.5	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	15.375	1			++				TB	

L34445-04

Tag:

Measured: 1/10/2017 12:08:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.125	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	125.1	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.883	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.31	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	50.3	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.9	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.191	1			++				TB	

L34445-04DUP

Tag:

Measured: 1/10/2017 1:21:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	FOUND	0.123	1		mmhos/cm	++	0.001	0.01			
SREV	CONDUCTIVITY	RPD	2	1		%	++	0.001	0.01			
SREV	PH	FOUND	7	1		units	++	0.1	0.1			
SREV	PH	RPD	0	1		%	++	0.1	0.1			
SREV	SAT PCNT	FOUND	51.79	1		%	++	0.01	0.1			
SREV	SAT PCNT	RPD	3	1		%	++	0.01	0.1			

L34674-01

Tag:

Measured: 1/10/2017 2:34:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.374	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	374	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.304	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.289	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	51.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.376	1			++				TB	

L34674-02

Tag:

Measured: 1/10/2017 3:47:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.174	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	174.4	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.388	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1			++				TB	
SREV	PH	PH-SP	6.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	50.5	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.8	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.962	1			++				TB	

L34674-03

Tag: Measured: 1/10/2017 4:59:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.280	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	280	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.673	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	42.6	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.1	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.815	1			++				TB	

L34674-04

Tag: Measured: 1/10/2017 6:12:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.230	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	230	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.386	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.29	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	55.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.743	1			++				TB	

L34674-05

Tag: Measured: 1/10/2017 7:25:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.356	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	356	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.552	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.3	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	47.2	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.974	1			++				TB	

L34674-06

Tag: Measured: 1/10/2017 8:38:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.402	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	402	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.62	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.301	1			++				TB	
SREV	PH	PH-SP	6.9	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	32.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.328	1			++				TB	

L34674-07

Tag: Measured: 1/10/2017 9:51:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.329	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	329	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.302	1			++				TB	
SREV	PH	PH-SP	8.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	35.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.998	1			++				TB	

L34674-08

Tag: Measured: 1/10/2017 11:04:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.415	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	415	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.402	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.308	1			++				TB	
SREV	PH	PH-SP	7.7	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	43.8	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.1	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.07	1			++				TB	

L34674-09

Tag: Measured: 1/11/2017 12:17:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.235	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	235	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.035	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.293	1			++				TB	
SREV	PH	PH-SP	6.9	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	32.6	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.3	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.561	1			++				TB	

L34674-10

Tag: Measured: 1/11/2017 1:29:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.239	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	239	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.056	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.286	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
NEED	SAT PCNT	REG	3.27	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.0	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	9.31	1			++				TB	

L34674-14

Tag: Measured: 1/11/2017 2:42:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.242	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	242	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.781	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.294	1			++				TB	
SREV	PH	PH-SP	7.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	81.2	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.235	1			++				TB	

WG415921CCV1

Tag: Measured: 1/11/2017 3:55:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

WG415921CCV2

Tag: Measured: 1/11/2017 5:08:27 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.1	1		units	++	0.1	0.1			
SREV	PH	REC	103	1		%	++	0.1	0.1			

WG415921ICV

Tag: Measured: 1/11/2017 9:59:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415921

Date Reported: 12-Jan-17
Run ID: R1491387
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

WG415921ICV

Tag:

Measured: 1/10/2017 12:08:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

L34445-01

Tag:

Measured: 1/10/2017 1:21:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.164	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	164.3	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.673	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.325	1			++				TB	
SREV	PH	PH-SP	6.7	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	49.8	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.9	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	12.335	1			++				TB	

L34445-02

Tag:

Measured: 1/10/2017 2:34:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.364	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	364	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.611	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.305	1			++				TB	
SREV	PH	PH-SP	7.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	52.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.7	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	13.935	1			++				TB	

L34445-03

Tag:

Measured: 1/10/2017 3:47:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.181	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	180.6	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	11.073	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.32	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	44.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.5	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	15.375	1			++				TB	

L34445-04

Tag: Measured: 1/10/2017 4:59:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.125	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	125.1	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.883	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.31	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	50.3	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.9	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.191	1			++				TB	

L34445-04DUP

Tag: Measured: 1/10/2017 6:12:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	FOUND	0.123	1		mmhos/cm	++	0.001	0.01			
SREV	CONDUCTIVITY	RPD	2	1		%	++	0.001	0.01			
SREV	PH	FOUND	7	1		units	++	0.1	0.1			
SREV	PH	RPD	0	1		%	++	0.1	0.1			
SREV	SAT PCNT	FOUND	51.79	1		%	++	0.01	0.1			
SREV	SAT PCNT	RPD	3	1		%	++	0.01	0.1			

L34674-01

Tag: Measured: 1/10/2017 7:25:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.374	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	374	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.304	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.289	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	51.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.376	1			++				TB	

L34674-02

Tag: Measured: 1/10/2017 8:38:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.174	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	174.4	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.388	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.288	1			++				TB	
SREV	PH	PH-SP	6.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	50.5	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	19.8	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.962	1			++				TB	

L34674-03

Tag:

Measured: 1/10/2017 9:51:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.280	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	280	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.673	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.296	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	42.6	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.1	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.815	1			++				TB	

L34674-04

Tag:

Measured: 1/10/2017 11:04:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.230	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	230	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.386	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.29	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	55.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.743	1			++				TB	

L34674-05

Tag:

Measured: 1/11/2017 12:17:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.356	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	356	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.552	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.3	1			++				TB	
SREV	PH	PH-SP	7.3	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	47.2	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.974	1			++				TB	

WG415921CCV1

Tag:

Measured: 1/11/2017 1:29:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

L34674-06

Tag: Measured: 1/11/2017 2:42:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.402	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	402	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.62	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.301	1			++				TB	
SREV	PH	PH-SP	6.9	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	32.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.328	1			++				TB	

L34674-07

Tag: Measured: 1/11/2017 3:55:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.329	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	329	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.302	1			++				TB	
SREV	PH	PH-SP	8.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	35.1	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	8.998	1			++				TB	

L34674-08

Tag: Measured: 1/11/2017 5:08:27 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.415	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	415	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	7.402	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.308	1			++				TB	
SREV	PH	PH-SP	7.7	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	43.8	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.1	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.07	1			++				TB	

L34674-09

Tag: Measured: 1/11/2017 6:21:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.235	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	235	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.035	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.293	1			++				TB	
SREV	PH	PH-SP	6.9	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	32.6	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.3	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.561	1			++				TB	

L34674-10

Tag: Measured: 1/11/2017 7:34:09 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.239	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	239	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	9.056	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.286	1			++				TB	
SREV	PH	PH-SP	7.0	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	REG	3.27	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.0	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	9.31	1			++				TB	

L34674-14

Tag: Measured: 1/11/2017 8:47:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CONDUCTIVITY	EC-SP	0.242	1		mmhos/cm	++	0.001	0.01		TB	
NEED	CONDUCTIVITY US	PREP	242	1		uS/cm	++				TB	
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	6.781	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.294	1			++				TB	
SREV	PH	PH-SP	7.5	1		units	++	0.1	0.1		TB	
SREV	SAT PCNT	SAT-PCNT	81.2	1		%	++	0.01	0.1		TB	
NEED	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	11.235	1			++				TB	

WG415921CCV2

Tag: Measured: 1/11/2017 9:59:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.1	1		units	++	0.1	0.1			
SREV	PH	REC	103	1		%	++	0.1	0.1			

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG416077

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 01/12/2017 9:06
Start Date/Time: 01/12/2017 9:15
End Date/Time: 01/13/2017 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
1	L34674-10	SB-15AL (25-50)	<2000			01/12/17 9:15	☑	2000					1.306	10.896	8.802	27.93		
2	L34674-10DUP	NONE	<2000			01/12/17 9:15	☑	2000					1.302	12.459	9.917	29.51		

Sample	Login Comments
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: SBA 1/13/17
Initials, Date

SREV: 1/13/17
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RPM
Date: 1/13/17
Approved: SRD
Date: 1/13/17

Analyst: RPM

Workgroup: WG411607

Analysis Date: 1/13/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?	✓		
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Saturated Paste

QC List Type: QC-SAT-PASTE
QCListMatClass: SOLID
Bench Sheet List: I-SAT-PASTE
QC Ref: CSTDX3-ICV-CCV
Group ID: SA-G-SAT-PASTE
Method Ref: 600/2-78-054 3.2.2
SOP Ref: SOPSO008

WG416077

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: PBJ
ACZ Dept: 25
Create Date: 01/12/2017 9:06
Start Date/Time: 1/12/17 9:15
End Date/Time: 1/13/17 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	Analysis Date	SAT PCNT	Max Particle Size (um)	pH (units)	Conductivity uS (uS/cm)	Conductivity mS (mS/cm)	Conductivity (mmhos/cm)	Pan Weight	Wet Sample And Pan Weight	Dry Sample And Pan Weight	Sat Pcnt (%)	Temperature (C)	Comments
1	L34674-10	SB-15AL (25-50)					☑						1.306	10.396	8.903			
2	L34674-10DUP	NONE					☑						1.302	12.459	9.917			

Sample	Login Comments
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: PBS

Pan weight	Wet Sample	Dry sample
1.311	8.903	1.311

Internal Comments

L34674-1701201346

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416077

Date Reported: 13-Jan-17
Run ID: R1492301
Date Analyzed: 12-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

L34674-10

Tag: 1 **Measured:** 1/12/2017 9:15:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRY SAMPLE AND PAN WEIGHT	PREP	8.802	1			++				TB	
NEED	MAX PARTICLE SIZE	REG	2000	1		um	++				TB	
NEED	PAN WEIGHT	PREP	1.306	1			++				TB	
SREV	SAT PCNT	SAT-PCNT	27.9	1		%	++	0.01	0.1		TB	
NEED	WET SAMPLE AND PAN WEIGHT	PREP	10.896	1			++				TB	

L34674-10DUP

Tag: **Measured:** 1/12/2017 9:15:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SAT PCNT	FOUND	29.51	1		%	++	0.01	0.1			
SREV	SAT PCNT	RPD	6	1		%	++	0.01	0.1			

Carbon

QC List Type: QC-TIC-TOC
QCListMatClass: SOLID
Bench Sheet List: I-TIC-TOC
QC Ref: TC-TIC-TOC-SOLID
Group ID: SA-G-TIC-TOC
Method Ref:
SOP Ref: SOPSO032

WG416304

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/17/2017 8:55
Start Date/Time: 01/17/2017 9:00
End Date/Time: 01/19/2017 16:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Total Carbon (%)	Total Inorganic Carbon (%)	Total Organic Carbon (%)	Comments
1	WG416304PBS	NONE	<250		01/19/17 16:30	0	0	0	
2	WG416304LCSS	PCN52724	<250		01/19/17 13:14	3.7	0.3	3.4	
3	L34445-01	TP-6_7_9 (2-5)	<250		01/17/17 9:00	1.3	0.2	1.1	
4	L34445-01DUP	NONE	<250		01/17/17 12:15	1.3	0.2	1.1	
5	L34445-02	TP-12 (2-4)	<250		01/17/17 15:31	2.9	1.7	1.2	
6	L34445-03	TP-15_16 (2-13)	<250		01/17/17 18:47	0.7	0.1	0.6	
7	L34445-04	TP-20 (1-4)	<250		01/17/17 22:03	1.5	0.2	1.3	
8	L34674-01	SB-06GT (1.5-10)	<250		01/18/17 1:19	1.9	0.5	1.4	
9	L34674-02	SB-07GT (0-4)	<250		01/18/17 4:35	1.7	0.3	1.4	
10	L34674-03	SB-09GT (8-12)	<250		01/18/17 7:51	0.5	0.1	0.4	
11	L34674-04	SB-09GT (18-22)	<250		01/18/17 11:07	0.3	0	0.3	
12	L34674-05	SB-12GT (0-27)	<250		01/18/17 14:22	1.8	0.6	1.2	
13	L34674-06	SB-13AL (0-25)	<250		01/18/17 17:38	1.6	0.2	1.4	
14	L34674-07	SB-14AL (0-15)	<250		01/18/17 20:54	1.1	0.9	0.2	
15	L34674-08	SB-14AL (15-35)	<250		01/19/17 0:10	0.8	0.6	0.2	
16	L34674-09	SB-15AL (0-25)	<250		01/19/17 3:26	0.9	0.1	0.8	
17	L34674-10	SB-15AL (25-50)	<250		01/19/17 6:42	1	0.1	0.9	
18	L34674-14	SB-09GT (8-12-DUPLIC	<250		01/19/17 9:58	0.6	0.1	0.5	

Report Comments: _____

Internal Comments _____

AREV: CRA 1-20-17
Initials, Date

SREV: BRD 1/20/17
Initials, Date

Carbon

QC List Type: QC-TIC-TOC
QCListMatClass: SOLID
Bench Sheet List: I-TIC-TOC
QC Ref: TC-TIC-TOC-SOLID
Group ID: SA-G-TIC-TOC
Method Ref:
SOP Ref: SOPSO032

WG416304

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: cra
ACZ Dept: 25
Create Date: 01/17/2017 8:55
Start Date/Time: 01/17/2017 9:00
End Date/Time: 01/19/2017 16:30

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

L34674-1701201346

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: GRA
Date: 1-19-17

Approved: BRO
Date: 1/20/17

Analyst: GRA

Workgroup: 416304

Analysis Date: 1-18-17 + 1-19-17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?			X
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?			X
8. Is the appropriate spike in the computer-designated line?			X
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
2 N HCl	SF170113-2	1-13-18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALCHK	0.2010	soils/ore	1/18/2017 10:30:35 AM	32.623	0.018662	A01
502-814	CALCHK	0.1930	soils/ore	1/18/2017 10:35:50 AM	0.27817	23.316	A02
LCSS	CALCHK	0.2000	soils/ore	1/18/2017 10:41:25 AM	3.8427	3.6670	A04
502-813	CALCHK	0.2030	soils/ore	1/18/2017 10:45:04 AM	1.2075	1.0844	A06
Blank	CALCHK	0.2020	soils/ore	1/18/2017 10:47:52 AM	0.0010210	-0.011873	A05
LCSS	CALCHK	0.2050	soils/ore	1/18/2017 3:47:46 PM	3.5983	3.7338	B05
Blank	CALCHK	0.2000	soils/ore	1/18/2017 3:49:46 PM	0.000089965	-0.0078375	B06
LCSS	TC/ST	0.2070	soils/ore	1/18/2017 3:54:18 PM	3.~~5012~~	3.6588	A01
L34445-01	TC/ST	0.1980	soils/ore	1/18/2017 3:56:30 PM	~~0.0094041~~	1.2857	A02
L34445-01DUP	TC/ST	0.2040	soils/ore	1/18/2017 3:58:42 PM	~~0.012725~~	1.2754	A03
L34445-02	TC/ST	0.2030	soils/ore	1/18/2017 4:00:40 PM	-0.0090165	2.9188	A04
L34445-03	TC/ST	0.2030	soils/ore	1/18/2017 4:02:58 PM	0.012985	0.71402	A05
L34445-04	TC/ST	0.2060	soils/ore	1/18/2017 4:05:13 PM	0.025136	1.5220	A06
L34674-01	TC/ST	0.2060	soils/ore	1/18/2017 4:07:25 PM	0.017401	1.8554	A07
L34674-02	TC/ST	0.2010	soils/ore	1/18/2017 4:09:36 PM	0.0015896	1.6846	A08
L34674-03	TC/ST	0.1960	soils/ore	1/18/2017 4:11:48 PM	0.00086695	0.47934	A09
L34674-04	TC/ST	0.1920	soils/ore	1/18/2017 4:13:45 PM	-0.0047724	0.28289	A10
L34674-05	TC/ST	0.1990	soils/ore	1/18/2017 4:16:09 PM	0.068280	1.7890	B01
L34674-06	TC/ST	0.1980	soils/ore	1/18/2017 4:18:20 PM	0.019054	1.5941	B02
L34674-07	TC/ST	0.1940	soils/ore	1/18/2017 4:20:39 PM	-0.0018712	1.0992	B03
L34674-08	TC/ST	0.1940	soils/ore	1/18/2017 4:23:28 PM	0.0054369	0.78273	B04
L34674-09	TC/ST	0.1930	soils/ore	1/18/2017 4:25:42 PM	0.0073698	0.87283	B05
L34674-10	TC/ST	0.2030	soils/ore	1/18/2017 4:27:59 PM	0.010034	0.95580	B06
L34674-14	TC/ST	0.2050	soils/ore	1/18/2017 4:30:10 PM	0.0070898	0.60189	B07
LCSS	CALCHK	0.1970	soils/ore	1/18/2017 4:33:30 PM	3.4606	3.7054	B08
Blank	CALCHK	0.2000	soils/ore	1/18/2017 4:35:30 PM	0.000050126	-0.0021143	B09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2001	0.004	2.227	26
Sulfur %	1.8729	6.40807	342.2	26
Carbon %	2.2645	4.45785	196.9	26

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALCHK	0.2000	soils/ore	1/19/2017 2:40:10 PM	33.126	0.015057	A02
502-814	CALCHK	0.2000	soils/ore	1/19/2017 2:42:28 PM	0.26989	23.987	A03
502-813	CALCHK	0.2000	soils/ore	1/19/2017 2:45:21 PM	1.2053	1.1388	A04
LCSS	CALCHK	0.2000	soils/ore	1/19/2017 2:48:08 PM	3.8232	3.7997	A05
Blank	CALCHK	0.2000	soils/ore	1/19/2017 2:50:41 PM	0.00028951	-0.012566	A06
LCSS	TOC	0.1990	soils/ore	1/19/2017 3:17:41 PM	0.080357	3.4369	A01
L34445-01	TOC	0.1960	soils/ore	1/19/2017 3:21:28 PM	0.011031	1.0777	A02
L34445-01DUP	TOC	0.2030	soils/ore	1/19/2017 3:23:40 PM	0.011526	1.0690	A03
L34445-02	TOC	0.1960	soils/ore	1/19/2017 3:25:34 PM	0.0060350	1.2383	A04
L34445-03	TOC	0.1930	soils/ore	1/19/2017 3:27:45 PM	0.0087503	0.56665	A05
L34445-04	TOC	0.1980	soils/ore	1/19/2017 3:29:41 PM	0.016405	1.2551	A06
L34674-01	TOC	0.2080	soils/ore	1/19/2017 3:31:52 PM	0.013913	1.3896	A07
L34674-02	TOC	0.2020	soils/ore	1/19/2017 3:33:49 PM	0.0057538	1.4023	A08
L34674-03	TOC	0.2040	soils/ore	1/19/2017 3:36:00 PM	0.0080784	0.43391	A09
L34674-04	TOC	0.1950	soils/ore	1/19/2017 3:37:53 PM	0.0044923	0.26968	A10
L34674-05	TOC	0.2020	soils/ore	1/19/2017 3:40:05 PM	0.063216	1.2077	B01
L34674-06	TOC	0.2060	soils/ore	1/19/2017 3:42:00 PM	0.014989	1.3831	B02
L34674-07	TOC	0.1960	soils/ore	1/19/2017 3:44:12 PM	0.0052853	0.21511	B03
L34674-08	TOC	0.1960	soils/ore	1/19/2017 3:46:09 PM	0.0070860	0.22227	B04
L34674-09	TOC	0.2080	soils/ore	1/19/2017 3:48:20 PM	0.014216	0.83091	B05
L34674-10	TOC	0.2000	soils/ore	1/19/2017 3:50:17 PM	0.020318	0.92529	B06
L34674-14	TOC	0.1980	soils/ore	1/19/2017 3:52:29 PM	0.011212	0.51644	B07
LCSS	CALCHK	0.1990	soils/ore	1/19/2017 3:54:59 PM	3.4069	3.8129	B08
Blank	CALCHK	0.2080	soils/ore	1/19/2017 3:57:19 PM	-0.000058596	0.011851	B09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2003	0.004	2.100	24
Sulfur %	1.7556	6.76027	385.1	24
Carbon %	2.0913	4.78969	229.0	24

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALIBRATE	0.1500	soils/ore	1/13/2017 10:55:17 AM	33.394	0.0019411	A02
High Sulfur	CALIBRATE	0.3500	soils/ore	1/13/2017 11:03:22 AM	32.695	0.0094383	A10
502-814	CALIBRATE	0.2500	soils/ore	1/13/2017 11:06:47 AM	0.34115	22.653	A04
502-814	CALIBRATE	0.1500	soils/ore	1/13/2017 11:09:58 AM	0.33399	22.347	A05
502-814	CALIBRATE	0.3500	soils/ore	1/13/2017 11:12:57 AM	0.33997	22.619	A06
502-813	CALIBRATE	0.2500	soils/ore	1/13/2017 11:17:21 AM	1.3270	1.0742	A07
502-813	CALIBRATE	0.1500	soils/ore	1/13/2017 11:20:43 AM	1.3041	1.0756	A08
502-813	CALIBRATE	0.3500	soils/ore	1/13/2017 11:24:54 AM	1.3193	1.0668	A09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2500	0.09	37.03	8
Sulfur %	8.8819	14.9217	168.0	8
Carbon %	8.8558	11.3402	128.1	8

Carbon

WG416304

ACZ Laboratories, Inc

QC List Type: QC-TIC-TOC
QCListMatClass: SOLID
Bench Sheet List: I-TIC-TOC
QC Ref: TC-TIC-TOC-SOLID
Group ID: SA-G-TIC-TOC
Method Ref:
SOP Ref: SOPSO032

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/17/2017 8:55
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Total Carbon (%)	Total Inorganic Carbon (%)	Total Organic Carbon (%)	Comments
1	WG416304PBS	NONE						—	
2	WG416304LCSS	PCN52724						0.199	
3	L34445-01 ✓	TP-6_7_9 (2-5)						0.196	
4	L34445-01DUP ✓	NONE						0.203	
5	L34445-02 ✓	TP-12 (2-4)						0.196	
6	L34445-03 ✓	TP-15_16 (2-13)						0.193	
7	L34445-04 ✓	TP-20 (1-4)						0.198	
8	L34674-01 ✓	SB-06GT (1.5-10)						0.208	
9	L34674-02 ✓	SB-07GT (0-4)						0.202	
10	L34674-03 ✓	SB-09GT (8-12)						0.204	
11	L34674-04 ✓	SB-09GT (18-22)						0.195	
12	L34674-05 ✓	SB-12GT (0-27)						0.202	
13	L34674-06 ✓	SB-13AL (0-25)						0.200	
14	L34674-07 ✓	SB-14AL (0-15)						0.196	
15	L34674-08 ✓	SB-14AL (15-35)						0.196	
16	L34674-09 ✓	SB-15AL (0-25)						0.208	
17	L34674-10 ✓	SB-15AL (25-50)						0.200	
18	L34674-14	SB-09GT (8-12-DUPLIC						0.198	

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Carbon

QC List Type: QC-TIC-TOC
QCListMatClass: SOLID
Bench Sheet List: I-TIC-TOC
QC Ref: TC-TIC-TOC-SOLID
Group ID: SA-G-TIC-TOC
Method Ref:
SOP Ref: SOPSO032

WG416304

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 01/17/2017 8:55
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG416304

Date Reported: 20-Jan-17
Run ID: R1494586
Date Analyzed: 17-Jan-17
ICAL Workgroup:
Instrument ID: SOILS

L34445-01

Tag: Measured: 1/17/2017 9:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.3	1		%	++	0.1	0.5		TB	
NEED	TIC	REG	.2	1	B	%	++	0.1	0.5		RA TB	
SREV	TOC	TOC	1.1	1		%	++	0.1	0.5		TB ZQ	

L34445-01DUP

Tag: Measured: 1/17/2017 12:15:53 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	FOUND	1.3	1		%	++	0.1	0.5			
SREV	TC	RPD	0	1		%	++	0.1	0.5			
SREV	TIC	FOUND	0.2	1	B	%	++	0.1	0.5			
SREV	TIC	RPD	0	1		%	++	0.1	0.5		RA	
SREV	TOC	FOUND	1.1	1		%	++	0.1	0.5			
SREV	TOC	RPD	0	1		%	++	0.1	0.5			

L34445-02

Tag: Measured: 1/17/2017 3:31:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	2.9	1		%	++	0.1	0.5		TB	
NEED	TIC	REG	1.7	1		%	++	0.1	0.5		RA TB	
SREV	TOC	TOC	1.2	1		%	++	0.1	0.5		TB ZQ	

L34445-03

Tag: Measured: 1/17/2017 6:47:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.7	1		%	++	0.1	0.5		TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		RA TB	
SREV	TOC	TOC	.6	1		%	++	0.1	0.5		TB ZQ	

L34445-04

Tag: Measured: 1/17/2017 10:03:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.5	1		%	++	0.1	0.5		TB	
NEED	TIC	REG	.2	1	B	%	++	0.1	0.5		RA TB	
SREV	TOC	TOC	1.3	1		%	++	0.1	0.5		TB ZQ	

L34674-01

Tag: Measured: 1/18/2017 1:19:25 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.9	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.5	1		%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	1.4	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-02

Tag: Measured: 1/18/2017 4:35:18 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.7	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.3	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	1.4	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-03

Tag: Measured: 1/18/2017 7:51:11 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.5	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.4	1	B	%	++	0.1	0.5		Q6 TB ZQ	

L34674-04

Tag: Measured: 1/18/2017 11:07:04 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.3	1	B	%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG		1	U	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.3	1	B	%	++	0.1	0.5		Q6 TB ZQ	

L34674-05

Tag: Measured: 1/18/2017 2:22:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.8	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.6	1		%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	1.2	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-06

Tag: Measured: 1/18/2017 5:38:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.6	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.2	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	1.4	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-07

Tag: Measured: 1/18/2017 8:54:43 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.1	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.9	1		%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.2	1	B	%	++	0.1	0.5		Q6 TB ZQ	

L34674-08

Tag: Measured: 1/19/2017 12:10:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.8	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.6	1		%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.2	1	B	%	++	0.1	0.5		Q6 TB ZQ	

L34674-09

Tag: Measured: 1/19/2017 3:26:29 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.9	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.8	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-10

Tag: Measured: 1/19/2017 6:42:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	1.0	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.9	1		%	++	0.1	0.5		Q6 TB ZQ	

L34674-14

Tag: Measured: 1/19/2017 9:58:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	TC	.6	1		%	++	0.1	0.5		Q6 TB	
NEED	TIC	REG	.1	1	B	%	++	0.1	0.5		Q6 RA TB	
SREV	TOC	TOC	.5	1		%	++	0.1	0.5		Q6 TB ZQ	

WG416304LCSS

Tag: Measured: 1/19/2017 1:14:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	FOUND	3.7	1		%	++	0.1	0.5			
SREV	TIC	FOUND	0.3	1	B	%	++	0.1	0.5			
SREV	TOC	FOUND	3.4	1		%	++	0.1	0.5		ZQ	

WG416304PBS

Tag: Measured: 1/19/2017 4:30:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	TC	FOUND		1	U	%	++	0.1	0.5			
SREV	TIC	FOUND		1	U	%	++	0.1	0.5			
SREV	TOC	FOUND		1	U	%	++	0.1	0.5			

Sample Weight

WG415317

ACZ Laboratories, Inc

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 12/28/2016 8:31
Start Date/Time: 12/28/2016 13:25
End Date/Time: 12/28/2016 13:40

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan and Sample Weight (g)	Sample Weight (g)	Comments
1	L34674-01	SB-06GT (1.5-10)	as rec		12/28/16 13:25	0	808.3	808.3	
2	L34674-02	SB-07GT (0-4)	as rec		12/28/16 13:26	0	696.6	696.6	
3	L34674-03	SB-09GT (8-12)	as rec		12/28/16 13:27	0	952.6	952.6	
4	L34674-04	SB-09GT (18-22)	as rec		12/28/16 13:28	0	1033	1033	
5	L34674-05	SB-12GT (0-27)	as rec		12/28/16 13:29	0	1025.3	1025.3	
6	L34674-06	SB-13AL (0-25)	as rec		12/28/16 13:30	0	779.8	779.8	
7	L34674-07	SB-14AL (0-15)	as rec		12/28/16 13:31	0	746.9	746.9	
8	L34674-08	SB-14AL (15-35)	as rec		12/28/16 13:33	0	848.9	848.9	
9	L34674-09	SB-15AL (0-25)	as rec		12/28/16 13:34	0	963.3	963.3	
10	L34674-10	SB-15AL (25-50)	as rec		12/28/16 13:35	0	719	719	
11	L34674-11	SB-01_02GT (1.5-6.5)	as rec		12/28/16 13:36	0	1502.3	1502.3	
12	L34674-12	TP-6 (7-10)-DUPLICAT	as rec		12/28/16 13:37	0	1930.4	1930.4	
13	L34674-13	TP-20 (12-14)-DUPLIC	as rec		12/28/16 13:38	0	2476.5	2476.5	
14	L34674-14	SB-09GT (8-12-DUPLIC	as rec		12/28/16 13:39	0	947.8	947.8	

Report Comments: _____

Internal Comments _____

AREV: 1/3/17
Initials, Date

SREV: 12/30/16
Initials, Date

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG415317

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: rbt
ACZ Dept: 25
Create Date: 12/28/2016 8:31
Start Date/Time: 12/28/2016 13:25
End Date/Time: 12/28/2016 13:40

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34674-1701201346

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBM
Date: 12/29/16
Approved: RBD
Date: 12/30/16

Analyst: RBM

Workgroup: WG415377

Analysis Date: 12/29/16

Sample type used: SD

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5.Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.02.14.08

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG415317

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: TZV
ACZ Dept: 25
Create Date: 12/28/2016 8:31
Start Date/Time: 12/28/16 13:25
End Date/Time: 12/28/16 13:40

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan and Sample Weight (g)	Sample Weight (g)	Comments
1	L34674-01	SB-06GT (1.5-10)				0		808.3	
2	L34674-02	SB-07GT (0-4)						696.6	
3	L34674-03	SB-09GT (8-12)						952.6	
4	L34674-04	SB-09GT (18-22)						1033.0	
5	L34674-05	SB-12GT (0-27)						1025.3	
6	L34674-06	SB-13AL (0-25)						779.8	
7	L34674-07	SB-14AL (0-15)						746.9	
8	L34674-08	SB-14AL (15-35)						848.9	
9	L34674-09	SB-15AL (0-25)						963.3	
10	L34674-10	SB-15AL (25-50)						719.0	
11	L34674-11	SB-01_02GT (1.5-6.5)						1502.3	
12	L34674-12	TP-6 (7-10)-DUPLICAT						1930.4	
13	L34674-13	TP-20 (12-14)-DUPLIC						2476.5	
14	L34674-14	SB-09GT (8-12-DUPLIC						947.8	

Report Comments: * Weight Includes BAV

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG415317

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 12/28/2016 8:31
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415317

Date Reported: 30-Dec-16
Run ID: R1488408
Date Analyzed: 28-Dec-16
ICAL Workgroup:
Instrument ID: SOILS

L34674-01

Tag:

Measured: 12/28/2016 1:25:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	808.3	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	808.3	1		g	++				TB	

L34674-02

Tag:

Measured: 12/28/2016 1:26:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	696.6	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	696.6	1		g	++				TB	

L34674-03

Tag:

Measured: 12/28/2016 1:27:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	952.6	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	952.6	1		g	++				TB	

L34674-04

Tag:

Measured: 12/28/2016 1:28:27 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1033	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1033	1		g	++				TB	

L34674-05

Tag:

Measured: 12/28/2016 1:29:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1025.3	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1025.3	1		g	++				TB	

L34674-06

Tag:

Measured: 12/28/2016 1:30:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	779.8	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	779.8	1		g	++				TB	

L34674-07

Tag:

Measured: 12/28/2016 1:31:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	746.9	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	746.9	1		g	++				TB	

L34674-08

Tag: Measured: 12/28/2016 1:33:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	848.9	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	848.9	1		g	++				TB	

L34674-09

Tag: Measured: 12/28/2016 1:34:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	963.3	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	963.3	1		g	++				TB	

L34674-10

Tag: Measured: 12/28/2016 1:35:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	719	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	719	1		g	++				TB	

L34674-11

Tag: Measured: 12/28/2016 1:36:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1502.3	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1502.3	1		g	++				TB	

L34674-12

Tag: Measured: 12/28/2016 1:37:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	1930.4	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	1930.4	1		g	++				TB	

L34674-13

Tag: Measured: 12/28/2016 1:38:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	2476.5	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	2476.5	1		g	++				TB	

L34674-14

Tag: Measured: 12/28/2016 1:39:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	947.8	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	947.8	1		g	++				TB	

Cation Exchange Capacity

QC List Type: I-X-CEC
QCListMatClass: SOLID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: PBS-DUP
Group ID: SP-G-CEC
Method Ref: USDA No. 60 (19)
SOP Ref: SOPSO033

WG416214

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/16/2017 8:01
Start Date/Time: 01/16/2017 8:45
End Date/Time: 01/16/2017 16:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	CEC	EC (mmhos/cm)	Comments
1	WG416214PBS	NONE	<2000		01/16/17 8:45		0.0127	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/16/17 9:14		0.0207	
3	L34445-01DUP	NONE	<2000		01/16/17 9:43		0.0199	
4	L34445-02	TP-12 (2-4)	<2000		01/16/17 10:12		0.038	
5	L34445-03	TP-15_16 (2-13)	<2000		01/16/17 10:41		0.0228	
6	L34445-04	TP-20 (1-4)	<2000		01/16/17 11:10		0.0195	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/16/17 11:39		0.01884	
8	L34674-02	SB-07GT (0-4)	<2000		01/16/17 12:08		0.0298	
9	L34674-03	SB-09GT (8-12)	<2000		01/16/17 12:37		0.01136	
10	L34674-04	SB-09GT (18-22)	<2000		01/16/17 13:06		0.0251	
11	L34674-05	SB-12GT (0-27)	<2000		01/16/17 13:35		0.01186	
12	L34674-06	SB-13AL (0-25)	<2000		01/16/17 14:04		0.01552	
13	L34674-07	SB-14AL (0-15)	<2000		01/16/17 14:33		0.01474	
14	L34674-08	SB-14AL (15-35)	<2000		01/16/17 15:02		0.01852	
15	L34674-09	SB-15AL (0-25)	<2000		01/16/17 15:31		0.01733	
16	L34674-10	SB-15AL (25-50)	<2000		01/16/17 16:01		0.0226	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/16/17 16:30		0.01032	

Report Comments: _____

Internal Comments _____

AREV: BCC 1.16.17
Initials, Date

SREV: DRD 1/17/17
Initials, Date

Cation Exchange Capacity

QC List Type: I-X-CEC
QCListMatClass: SOLID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: PBS-DUP
Group ID: SP-G-CEC
Method Ref: USDA No. 60 (19)
SOP Ref: SOPSO033

WG416214

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/16/2017 8:01
Start Date/Time: 01/16/2017 8:45
End Date/Time: 01/16/2017 16:30

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-16-17

Approved: BRD
Date: 1/17/17

Analyst: BCC

Workgroup: 46214

Analysis Date: 1/16/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?	✓		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)? BRD 1/17/17	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)? BCC 1-16-17	✓		✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?	✓		
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
1 N Sodium Acetate	SI170112-2	1-12-18
1 N Ammonium Acetate	SI170112-3	1-12-18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Cation Exchange Capacity

QC List Type: I-X-CEC
QCListMatClass: SOLID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: PBS-DUP
Group ID: SP-G-CEC
Method Ref: USDA No. 60 (19)
SOP Ref: SOPSO033

WG416214

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/16/2017 8:01
Start Date/Time: 1/16/17 8:45
End Date/Time: 1/16/17

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	CEC	EC (mmhos/cm)	Comments (uS/cm)
1	WG416214PBS	NONE					0.0127	12.7
2	L34445-01	TP-6_7_9 (2-5)					0.0207	20.7
3	L34445-01DUP	NONE				BCC 1-16-17	~~0.19~~ 0.0199	19.9
4	L34445-02	TP-12 (2-4)					0.038	38.0
5	L34445-03	TP-15_16 (2-13)					0.0228	22.8
6	L34445-04	TP-20 (1-4)					0.0195	19.5
7	L34674-01	SB-06GT (1.5-10)					0.01884	18.84
8	L34674-02	SB-07GT (0-4)					0.0298	29.8
9	L34674-03	SB-09GT (8-12)					0.01136	11.36
10	L34674-04	SB-09GT (18-22)					0.0251	25.1
11	L34674-05	SB-12GT (0-27)					0.01186	11.86
12	L34674-06	SB-13AL (0-25)					0.01552	15.52
13	L34674-07	SB-14AL (0-15)					0.01474	14.74
14	L34674-08	SB-14AL (15-35)					0.01852	18.52
15	L34674-09	SB-15AL (0-25)					0.01733	17.33
16	L34674-10	SB-15AL (25-50)					0.0226	22.6
17	L34674-14	SB-09GT (8-12-DUPLIC					0.01032	10.32

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L34674-1701201346

Cation Exchange Capacity

QC List Type: I-X-CEC
QCListMatClass: SOLID
Bench Sheet List: I-ICP2-T-CEC
QC Ref: PBS-DUP
Group ID: SP-G-CEC
Method Ref: USDA No. 60 (19)
SOP Ref: SOPSO033

WG416214

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/16/2017 8:01
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L34674-1701201346

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415316

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 12/28/2016 8:30
Start Date/Time: 12/28/2016 14:20
End Date/Time: 12/29/2016 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L34674-01	SB-06GT (1.5-10)	as rec			12/28/16 14:20	12/29/2016	
2	L34674-02	SB-07GT (0-4)	as rec			12/28/16 15:50	12/29/2016	
3	L34674-03	SB-09GT (8-12)	as rec			12/28/16 17:21	12/29/2016	
4	L34674-04	SB-09GT (18-22)	as rec			12/28/16 18:52	12/29/2016	
5	L34674-05	SB-12GT (0-27)	as rec			12/28/16 20:23	12/29/2016	
6	L34674-06	SB-13AL (0-25)	as rec			12/28/16 21:53	12/29/2016	
7	L34674-07	SB-14AL (0-15)	as rec			12/28/16 23:24	12/29/2016	
8	L34674-08	SB-14AL (15-35)	as rec			12/29/16 0:55	12/29/2016	
9	L34674-09	SB-15AL (0-25)	as rec			12/29/16 2:26	12/29/2016	
10	L34674-10	SB-15AL (25-50)	as rec			12/29/16 3:56	12/29/2016	
11	L34674-11	SB-01_02GT (1.5-6.5)	as rec			12/29/16 5:27	12/29/2016	
12	L34674-12	TP-6 (7-10)-DUPLICAT	as rec			12/29/16 6:58	12/29/2016	
13	L34674-13	TP-20 (12-14)-DUPLIC	as rec			12/29/16 8:29	12/29/2016	
14	L34674-14	SB-09GT (8-12-DUPLIC	as rec			12/29/16 9:59	12/29/2016	

Report Comments: _____

Internal Comments _____

AREV: DBW 12/29/16
Initials, Date

SREV: BD 12/30/16
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415316

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 12/28/2016 8:30
Start Date/Time: 12/28/2016 14:20
End Date/Time: 12/29/2016 10:00

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBJ
Date: 12/29/16

Approved: TED
Date: 12/30/16

Analyst: RBJ

Workgroup: WG415316

Analysis Date: 12/29/16

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?			✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415316

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: JN
ACZ Dept: 20
Create Date: 12/28/2016 8:30
Start Date/Time: 14:20 12/28/16
End Date/Time: 12/29/16 10:00

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L34674-01	SB-06GT (1.5-10)				12/28/16	12/28/16	
2	L34674-02	SB-07GT (0-4)						
3	L34674-03	SB-09GT (8-12)						
4	L34674-04	SB-09GT (18-22)						
5	L34674-05	SB-12GT (0-27)						
6	L34674-06	SB-13AL (0-25)						
7	L34674-07	SB-14AL (0-15)						
8	L34674-08	SB-14AL (15-35)						
9	L34674-09	SB-15AL (0-25)						
10	L34674-10	SB-15AL (25-50)						
11	L34674-11	SB-01_02GT (1.5-6.5)						
12	L34674-12	TP-6 (7-10)-DUPLICAT						
13	L34674-13	TP-20 (12-14)-DUPLIC						
14	L34674-14	SB-09GT (8-12-DUPLIC						

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG415316

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 12/28/2016 8:30
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415316

Date Reported: 30-Dec-16
Run ID: R1488406
Date Analyzed: 28-Dec-16
ICAL Workgroup:
Instrument ID: SOILSPREP

L34674-01

Tag: Measured: 12/28/2016 2:20:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-02

Tag: Measured: 12/28/2016 3:50:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-03

Tag: Measured: 12/28/2016 5:21:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-04

Tag: Measured: 12/28/2016 6:52:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-05

Tag: Measured: 12/28/2016 8:23:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-06

Tag: Measured: 12/28/2016 9:53:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-07

Tag: Measured: 12/28/2016 11:24:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-08

Tag: Measured: 12/29/2016 12:55:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-09

Tag: Measured: 12/29/2016 2:26:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-10

Tag: Measured: 12/29/2016 3:56:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-11

Tag:

Measured: 12/29/2016 5:27:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-12

Tag:

Measured: 12/29/2016 6:58:26 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-13

Tag:

Measured: 12/29/2016 8:29:12 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L34674-14

Tag:

Measured: 12/29/2016 9:59:58 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

Hot Water Extraction

QC List Type: I-X-HW
QCListMatClass: SOLID
Bench Sheet List: I-X-HW
QC Ref: PBS-DUP
Group ID: SP-G-HW
Method Ref: M80-3 ASA No. 9
SOP Ref: SOPSO004

WG415942

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/10/2017 11:23
Start Date/Time: 01/10/2017 11:30
End Date/Time: 01/10/2017 16:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415942PBS	NONE	<2000		01/10/17 11:30	0	100	5	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/10/17 11:46	20	100	5	
3	L34445-01DUP	NONE	<2000		01/10/17 12:03	20	100	5	
4	L34445-02	TP-12 (2-4)	<2000		01/10/17 12:20	20	100	5	
5	L34445-03	TP-15_16 (2-13)	<2000		01/10/17 12:37	20	100	5	
6	L34445-04	TP-20 (1-4)	<2000		01/10/17 12:54	20	100	5	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/10/17 13:11	20	100	5	
8	L34674-02	SB-07GT (0-4)	<2000		01/10/17 13:28	20	100	5	
9	L34674-03	SB-09GT (8-12)	<2000		01/10/17 13:44	20	100	5	
10	L34674-04	SB-09GT (18-22)	<2000		01/10/17 14:01	20	100	5	
11	L34674-05	SB-12GT (0-27)	<2000		01/10/17 14:18	20	100	5	
12	L34674-06	SB-13AL (0-25)	<2000		01/10/17 14:35	20	100	5	
13	L34674-07	SB-14AL (0-15)	<2000		01/10/17 14:52	20	100	5	
14	L34674-08	SB-14AL (15-35)	<2000		01/10/17 15:09	20	100	5	
15	L34674-09	SB-15AL (0-25)	<2000		01/10/17 15:26	20	100	5	
16	L34674-10	SB-15AL (25-50)	<2000		01/10/17 15:43	20	100	5	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/10/17 15:59	20	100	5	

Report Comments: _____

Internal Comments _____

AREV: BCC 1-11-17
Initials, Date

SREV: 1/11/17
Initials, Date

Hot Water Extraction

QC List Type: I-X-HW
QCListMatClass: SOLID
Bench Sheet List: I-X-HW
QC Ref: PBS-DUP
Group ID: SP-G-HW
Method Ref: M80-3 ASA No. 9
SOP Ref: SOPSO004

WG415942

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/10/2017 11:23
Start Date/Time: 01/10/2017 11:30
End Date/Time: 01/10/2017 16:00

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1/11/17

Approved: [illegible]
Date: 1/11/17

Analyst: BCC

Workgroup: 415942

Analysis Date: 1/10/2017

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?			X
7. Does all the spike information correlate with each other?			X
8. Is the appropriate spike in the computer-designated line?			X
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments: _____

FRMSQ010.02.14.08

Hot Water Extraction

QC List Type: I-X-HW
QCListMatClass: SOLID
Bench Sheet List: I-X-HW
QC Ref: PBS-DUP
Group ID: SP-G-HW
Method Ref: M80-3 ASA No. 9
SOP Ref: SOPSO004

WG415942

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BXC
ACZ Dept: 20
Create Date: 01/10/2017 11:23
Start Date/Time: 1/10/17 11:30a
End Date/Time: 1/10/17 4:00p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415942PBS	NONE				0	100	1	
2	L34445-01	TP-6_7_9 (2-5)				20.000		5x 1	
3	L34445-01DUP	NONE				20.000		1	
4	L34445-02	TP-12 (2-4)				20.000		1	
5	L34445-03	TP-15_16 (2-13)				20.000		1	
6	L34445-04	TP-20 (1-4)				20.000		1	
7	L34674-01	SB-06GT (1.5-10)				20.000		1	
8	L34674-02	SB-07GT (0-4)				20.000		1	
9	L34674-03	SB-09GT (8-12)				20.000		1	
10	L34674-04	SB-09GT (18-22)				20.000		1	
11	L34674-05	SB-12GT (0-27)				20.000		1	
12	L34674-06	SB-13AL (0-25)				20.000		1	
13	L34674-07	SB-14AL (0-15)				20.000		1	
14	L34674-08	SB-14AL (15-35)				20.000		1	
15	L34674-09	SB-15AL (0-25)				20.000		1	
16	L34674-10	SB-15AL (25-50)				20.000		1	
17	L34674-14	SB-09GT (8-12-DUPLIC				20.000		1	

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Hot Water Extraction

QC List Type: I-X-HW
QCListMatClass: SOLID
Bench Sheet List: I-X-HW
QC Ref: PBS-DUP
Group ID: SP-G-HW
Method Ref: M80-3 ASA No. 9
SOP Ref: SOPSO004

WG415942

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/10/2017 11:23
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments:

Internal Comments

L34674-1701201346

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415942

Date Reported: 11-Jan-17
Run ID: R1491347
Date Analyzed: 10-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

WG415942PBS

Tag: Measured: 1/10/2017 11:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	PREP	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	PREP	0	5		g	NEED					

L34445-01

Tag: Measured: 1/10/2017 11:46:52 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34445-01DUP

Tag: Measured: 1/10/2017 12:03:44 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	PREP	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	PREP	20	5		g	NEED					

L34445-02

Tag: Measured: 1/10/2017 12:20:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34445-03

Tag: Measured: 1/10/2017 12:37:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34445-04

Tag: Measured: 1/10/2017 12:54:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-01

Tag: Measured: 1/10/2017 1:11:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-02

Tag: Measured: 1/10/2017 1:28:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-03

Tag: Measured: 1/10/2017 1:44:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-04

Tag: Measured: 1/10/2017 2:01:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-05

Tag: Measured: 1/10/2017 2:18:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-06

Tag: Measured: 1/10/2017 2:35:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-07

Tag: Measured: 1/10/2017 2:52:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-08

Tag: Measured: 1/10/2017 3:09:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-09

Tag: Measured: 1/10/2017 3:26:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-10

Tag: Measured: 1/10/2017 3:43:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

L34674-14

Tag: Measured: 1/10/2017 3:59:52 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-HW	100	5		mL	NEED					
SREV	WEIGHT, SAMPLE	X-HW	20	5		g	NEED					

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415879PBS	NONE	<2000		01/09/17 11:30	0	100	10	
2	L34445-01	TP-6_7_9 (2-5)	<2000		01/09/17 11:46	10	100	10	
3	L34445-01DUP	NONE	<2000		01/09/17 12:02	10	100	10	
4	L34445-02	TP-12 (2-4)	<2000		01/09/17 12:18	10	100	10	
5	L34445-03	TP-15_16 (2-13)	<2000		01/09/17 12:35	10	100	10	
6	L34445-04	TP-20 (1-4)	<2000		01/09/17 12:51	10	100	10	
7	L34674-01	SB-06GT (1.5-10)	<2000		01/09/17 13:07	10	100	10	
8	L34674-02	SB-07GT (0-4)	<2000		01/09/17 13:23	10	100	10	
9	L34674-03	SB-09GT (8-12)	<2000		01/09/17 13:40	10	100	10	
10	L34674-04	SB-09GT (18-22)	<2000		01/09/17 13:56	10	100	10	
11	L34674-05	SB-12GT (0-27)	<2000		01/09/17 14:12	10	100	10	
12	L34674-06	SB-13AL (0-25)	<2000		01/09/17 14:28	10	100	10	
13	L34674-07	SB-14AL (0-15)	<2000		01/09/17 14:45	10	100	10	
14	L34674-08	SB-14AL (15-35)	<2000		01/09/17 15:01	10	100	10	
15	L34674-09	SB-15AL (0-25)	<2000		01/09/17 15:17	10	100	10	
16	L34674-10	SB-15AL (25-50)	<2000		01/09/17 15:33	10	100	10	
17	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/09/17 15:50	10	100	10	

Report Comments: _____

Internal Comments _____

AREV: Bcc 1-9-17
Initials, Date

SREV: BPD 1/10/17
Initials, Date

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 01/09/2017 11:30
End Date/Time: 01/09/2017 15:50

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 1-09-17

Approved: BRD
Date: 1/10/17

Analyst: BCC

Workgroup: 415879

Analysis Date: 1/9/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?	X		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	X		
6. Did the RPD pass?			X
7. Does all the spike information correlate with each other?			X
8. Is the appropriate spike in the computer-designated line?			X
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
2 M KCl Extraction Fluid	SI170109-2	1-10-17

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time: 1/9/17 11:30a
End Date/Time: 1/9/17 3:50p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Dilution	Comments
1	WG415879PBS	NONE				0	100	1	
2	L34445-01	TP-6_7_9 (2-5)	C2200			10.000		1 10x	
3	L34445-01DUP	NONE				10.000		1	
4	L34445-02	TP-12 (2-4)				10.000		1	
5	L34445-03	TP-15_16 (2-13)				10.000		1	
6	L34445-04	TP-20 (1-4)				10.000		1	
7	L34674-01	SB-06GT (1.5-10)				10.000		1	
8	L34674-02	SB-07GT (0-4)				10.000		1	
9	L34674-03	SB-09GT (8-12)				10.000		1	
10	L34674-04	SB-09GT (18-22)				10.000		1	
11	L34674-05	SB-12GT (0-27)				10.000		1	
12	L34674-06	SB-13AL (0-25)				10.000		1	
13	L34674-07	SB-14AL (0-15)				10.000		1	
14	L34674-08	SB-14AL (15-35)				10.000		1	
15	L34674-09	SB-15AL (0-25)				10.000		1	
16	L34674-10	SB-15AL (25-50)				10.000		1	
17	L34674-14	SB-09GT (8-12-DUPLIC				10.000		1	

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

KCL

QC List Type: I-X-KCL
QCListMatClass: SOLID
Bench Sheet List: I-RFA-NH3-KCL
QC Ref: PBS-DUP
Group ID: SP-G-KCL
Method Ref: M81.3 ASA No. 9
SOP Ref: SOPSO006

WG415879

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/09/2017 11:28
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415879

Date Reported: 10-Jan-17
Run ID: R1490913
Date Analyzed: 09-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

WG415879PBS

Tag: Measured: 1/9/2017 11:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	PREP	100	10		mL	+					
SREV	WEIGHT, SAMPLE	PREP	0	10		g	+					

L34445-01

Tag: Measured: 1/9/2017 11:46:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34445-01DUP

Tag: Measured: 1/9/2017 12:02:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	PREP	100	10		mL	+					
SREV	WEIGHT, SAMPLE	PREP	10	10		g	+					

L34445-02

Tag: Measured: 1/9/2017 12:18:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34445-03

Tag: Measured: 1/9/2017 12:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34445-04

Tag: Measured: 1/9/2017 12:51:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-01

Tag: Measured: 1/9/2017 1:07:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-02

Tag: Measured: 1/9/2017 1:23:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-03

Tag: Measured: 1/9/2017 1:40:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-04

Tag: Measured: 1/9/2017 1:56:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-05

Tag: Measured: 1/9/2017 2:12:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-06

Tag: Measured: 1/9/2017 2:28:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-07

Tag: Measured: 1/9/2017 2:45:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-08

Tag: Measured: 1/9/2017 3:01:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-09

Tag: Measured: 1/9/2017 3:17:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-10

Tag: Measured: 1/9/2017 3:33:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

L34674-14

Tag: Measured: 1/9/2017 3:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	VOLUME, SOIL EXTRACT	X-KCL	100	10		mL	+					
SREV	WEIGHT, SAMPLE	X-KCL	10	10		g	+					

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
1	L34445-01	TP-6_7_9 (2-5)	dry		01/04/17 11:00	✔	✔	1/4/2017		1/4/2017								
2	L34445-02	TP-12 (2-4)	dry		01/04/17 12:05	✔	✔	1/4/2017		1/4/2017								
3	L34445-03	TP-15_16 (2-13)	dry		01/04/17 13:10	✔	✔	1/4/2017		1/4/2017								
4	L34445-04	TP-20 (1-4)	dry		01/04/17 14:16	✔	✔	1/4/2017		1/4/2017								
5	L34446-01	SB-01_02GT (1.5-6.5)	dry		01/04/17 15:21	✔	✔	1/4/2017		1/4/2017								
6	L34446-02	SB-07GT (4-21)	dry		01/04/17 16:26	✔	✔	1/4/2017		1/4/2017								
7	L34446-03	SB-03_TP-3 (1-5)	dry		01/04/17 17:32	✔	✔	1/4/2017		1/4/2017								
8	L34446-04	TP-6 (7-10)	dry		01/04/17 18:37	✔	✔	1/4/2017		1/4/2017								
9	L34446-05	TP-8 (3.5-13)	dry		01/04/17 19:43	✔	✔	1/4/2017		1/4/2017								
10	L34446-06	TP-9 (7-14)	dry		01/04/17 20:48	✔	✔	1/4/2017		1/4/2017								
11	L34446-07	TP-12 (7-9)	dry		01/04/17 21:53	✔	✔	1/4/2017		1/4/2017								
12	L34446-08	TP-14 (3-7)	dry		01/04/17 22:59	✔	✔	1/4/2017		1/4/2017								
13	L34446-09	TP-20 (12-14)	dry		01/05/17 0:04	✔	✔	1/4/2017		1/4/2017								
14	L34674-01	SB-06GT (1.5-10)	dry		01/05/17 1:09	✔	✔	1/5/2017		1/5/2017								
15	L34674-02	SB-07GT (0-4)	dry		01/05/17 2:15	✔	✔	1/5/2017		1/5/2017								
16	L34674-03	SB-09GT (8-12)	dry		01/05/17 3:20	✔	✔	1/5/2017		1/5/2017								
17	L34674-04	SB-09GT (18-22)	dry		01/05/17 4:26	✔	✔	1/5/2017		1/5/2017								
18	L34674-05	SB-12GT (0-27)	dry		01/05/17 5:31	✔	✔	1/5/2017		1/5/2017								
19	L34674-06	SB-13AL (0-25)	dry		01/05/17 6:36	✔	✔	1/5/2017		1/5/2017								
20	L34674-07	SB-14AL (0-15)	dry		01/05/17 7:42	✔	✔	1/5/2017		1/5/2017								
21	L34674-08	SB-14AL (15-35)	dry		01/05/17 8:47	✔	✔	1/5/2017		1/5/2017								

Report Comments: _____

Internal Comments _____

AREV: RBT 1/10/17
Initials, Date

SREV: TRD 1/9/17
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
22	L34674-09	SB-15AL (0-25)	dry		01/05/17 9:53	☑	☑	1/5/2017		1/5/2017								
23	L34674-10	SB-15AL (25-50)	dry		01/05/17 10:58	☑	☑	1/5/2017		1/5/2017								
24	L34674-11	SB-01_02GT (1.5-6.5)	dry		01/05/17 12:03	☑	☑	1/5/2017		1/5/2017								
25	L34674-12	TP-6 (7-10)-DUPLICAT	dry		01/05/17 13:09	☑	☑	1/5/2017		1/5/2017								
26	L34674-13	TP-20 (12-14)-DUPLIC	dry		01/05/17 14:14	☑	☑	1/5/2017		1/5/2017								
27	L34674-14	SB-09GT (8-12-DUPLIC	dry		01/05/17 15:19	☑	☑	1/5/2017		1/5/2017								

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: tjv
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:00
End Date/Time: 01/05/2017 15:20

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: PDT
Date: 1/6/17
Approved: RD
Date: 1/9/17

Analyst: TJ ✓

Workgroup: WG41SL021

Analysis Date: 1/6/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?		✓	
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments: _____

FRMSO010.07.14.08

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: TN
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time: 01/04/2017 11:20
End Date/Time: 01/05/2017 15:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
1	L34445-01	TP-6_7_9 (2-5)			01/04/17	✓	✓											
2	L34445-02	TP-12 (2-4)				✓	✓											
3	L34445-03	TP-15_16 (2-13)				✓	✓											
4	L34445-04	TP-20 (1-4)				✓	✓											
5	L34446-01	SB-01_02GT (1.5-6.5)				✓	✓											
6	L34446-02	SB-07GT (4-21)				✓	✓											
7	L34446-03	SB-03_TP-3 (1-5)				✓	✓											
8	L34446-04	TP-6 (7-10)				✓	✓											
9	L34446-05	TP-8 (3.5-13)				✓	✓											
10	L34446-06	TP-9 (7-14)				✓	✓											
11	L34446-07	TP-12 (7-9)				✓	✓											
12	L34446-08	TP-14 (3-7)				✓	✓											
13	L34446-09	TP-20 (12-14)				✓	✓											
14	L34674-01	SB-06GT (1.5-10)			01/05/17	✓	✓											
15	L34674-02	SB-07GT (0-4)				✓	✓											
16	L34674-03	SB-09GT (8-12)				✓	✓											
17	L34674-04	SB-09GT (18-22)				✓	✓											
18	L34674-05	SB-12GT (0-27)				✓	✓											
19	L34674-06	SB-13AL (0-25)				✓	✓											
20	L34674-07	SB-14AL (0-15)				✓	✓											
21	L34674-08	SB-14AL (15-35)				✓	✓											

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP SIEVE2000	SP SIEVE250	SP Sieve2000	SP Sieve500	SP Sieve250	SP Sieve177	sp sieve150	SP Sieve125	SP Sieve100	SP Sieve74	SP Sieve63	SP Sieve38	Comments
22	L34674-09	SB-15AL (0-25)			01/05/17	☑	☑											
23	L34674-10	SB-15AL (25-50)				☑	☑											
24	L34674-11	SB-01_02GT (1.5-6.5)				☑	☑											
25	L34674-12	TP-6 (7-10)-DUPLICAT				☑	☑											
26	L34674-13	TP-20 (12-14)-DUPLIC				☑	☑											
27	L34674-14	SB-09GT (8-12-DUPLIC				☑	☑											

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Soil Prep Sieve

QC List Type: I-SP-SIEVE-ALL
QCListMatClass: SOLID
Bench Sheet List: I-SP-SIEVE-ALL
QC Ref: NOQC
Group ID: SP-G-SIEVE
Method Ref: ASA No. 9 15-4.2.2
SOP Ref: SOPSO001

WG415621

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/04/2017 10:49
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34446-01	ZIPLOCK || In the Inorganic cooler.
L34446-02	ZIPLOCK || In the Inorganic cooler.
L34446-03	ZIPLOCK || In the Inorganic cooler.
L34446-04	ZIPLOCK || In the Inorganic cooler.
L34446-05	ZIPLOCK || In the Inorganic cooler.
L34446-06	ZIPLOCK || In the Inorganic cooler.
L34446-07	ZIPLOCK || In the Inorganic cooler.
L34446-08	ZIPLOCK || In the Inorganic cooler.
L34446-09	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-11	ZIPLOCK || Located in the Inorganic Cooler.
L34674-12	ZIPLOCK || Located in the Inorganic Cooler.
L34674-13	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415621

Date Reported: 09-Jan-17
Run ID: R1490404
Date Analyzed: 04-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

L34445-01

Tag: Measured: 1/4/2017 11:00:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-02

Tag: Measured: 1/4/2017 12:05:23 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-03

Tag: Measured: 1/4/2017 1:10:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34445-04

Tag: Measured: 1/4/2017 2:16:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34446-01

Tag: Measured: 1/4/2017 3:21:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-02

Tag: Measured: 1/4/2017 4:26:55 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-03

Tag: Measured: 1/4/2017 5:32:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-04

Tag: Measured: 1/4/2017 6:37:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-05

Tag: Measured: 1/4/2017 7:43:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-06

Tag: Measured: 1/4/2017 8:48:27 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-07

Tag: Measured: 1/4/2017 9:53:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-08

Tag: Measured: 1/4/2017 10:59:13 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34446-09

Tag: Measured: 1/5/2017 12:04:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-01

Tag: Measured: 1/5/2017 1:09:59 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-02

Tag: Measured: 1/5/2017 2:15:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-03

Tag: Measured: 1/5/2017 3:20:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-04

Tag: Measured: 1/5/2017 4:26:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-05

Tag: Measured: 1/5/2017 5:31:31 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-06

Tag: Measured: 1/5/2017 6:36:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-07

Tag: Measured: 1/5/2017 7:42:17 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-08

Tag: Measured: 1/5/2017 8:47:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-09

Tag: Measured: 1/5/2017 9:53:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-10

Tag: Measured: 1/5/2017 10:58:26 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

L34674-11

Tag: Measured: 1/5/2017 12:03:49 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-12

Tag: Measured: 1/5/2017 1:09:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-13

Tag: Measured: 1/5/2017 2:14:35 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	SIEVE250		1			NEED					
SREV	SP SIEVE250	SIEVE250		1			NEED					

L34674-14 **Tag:** **Measured:** **1/5/2017 3:19:58 PM**

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP SIEVE2000	IEVE2000		1			NEED					
SREV	SP SIEVE250	IEVE2000		1			NEED					

Saturated Paste

QC List Type: I-X-SP
QCListMatClass: SOLID
Bench Sheet List: I-X-SP
QC Ref: SP-SP
Group ID: SP-G-SP
Method Ref: USDA No. 60 (2)
SOP Ref: SOPSO008

WG415901

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: rbt
ACZ Dept: 20
Create Date: 01/09/2017 14:13
Start Date/Time: 01/09/2017 14:15
End Date/Time: 01/09/2017 14:45

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	CA SP	EC SP	K SP	MG SP	NA SP	PH SP	SAT PCNT	SAT PASTE	Comments
1	L34445-01	TP-6_7_9 (2-5)	<2000		01/09/17 14:15	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
2	L34445-02	TP-12 (2-4)	<2000		01/09/17 14:17	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
3	L34445-03	TP-15_16 (2-13)	<2000		01/09/17 14:19	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
4	L34445-04	TP-20 (1-4)	<2000		01/09/17 14:21	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
5	L34445-04DUP	NONE	<2000		01/09/17 14:23	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
6	L34674-01	SB-06GT (1.5-10)	<2000		01/09/17 14:25	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
7	L34674-02	SB-07GT (0-4)	<2000		01/09/17 14:27	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
8	L34674-03	SB-09GT (8-12)	<2000		01/09/17 14:29	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
9	L34674-04	SB-09GT (18-22)	<2000		01/09/17 14:31	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
10	L34674-05	SB-12GT (0-27)	<2000		01/09/17 14:33	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
11	L34674-06	SB-13AL (0-25)	<2000		01/09/17 14:35	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
12	L34674-07	SB-14AL (0-15)	<2000		01/09/17 14:37	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
13	L34674-08	SB-14AL (15-35)	<2000		01/09/17 14:39	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
14	L34674-09	SB-15AL (0-25)	<2000		01/09/17 14:41	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
15	L34674-10	SB-15AL (25-50)	<2000		01/09/17 14:43	✓	✓	✓	✓	✓	✓	✓	1/9/2017	
16	L34674-14	SB-09GT (8-12-DUPLIC	<2000		01/09/17 14:45	✓	✓	✓	✓	✓	✓	✓	1/9/2017	

Report Comments: _____

Internal Comments _____

AREV: RBT 1/9/17
Initials, Date

SREV: BRD 1/9/17
Initials, Date

Saturated Paste

QC List Type: I-X-SP
QCListMatClass: SOLID
Bench Sheet List: I-X-SP
QC Ref: SP-SP
Group ID: SP-G-SP
Method Ref: USDA No. 60 (2)
SOP Ref: SOPSO008

WG415901

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: rbt
ACZ Dept: 20
Create Date: 01/09/2017 14:13
Start Date/Time: 01/09/2017 14:15
End Date/Time: 01/09/2017 14:45

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBJ
Date: 1/9/17
Approved: SKD
Date: 1/9/17

Analyst: RBJ

Workgroup: WG415901

Analysis Date: 1/9/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000 <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?			✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

FRMSO010.07.14.08

Saturated Paste

QC List Type: I-X-SP
QCListMatClass: SOLID
Bench Sheet List: I-X-SP
QC Ref: SP-SP
Group ID: SP-G-SP
Method Ref: USDA No. 60 (2)
SOP Ref: SOPSO008

WG415901

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: RDT
ACZ Dept: 20
Create Date: 01/09/2017 14:13
Start Date/Time: 1/9/17 2:15p
End Date/Time: 1/9/17 2:45p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	CA SP	EC SP	K SP	MG SP	NA SP	PH SP	SAT PCNT	SAT PASTE	Comments
1	L34445-01	TP-6_7_9 (2-5)				✓	✓	✓	✓	✓	✓	✓		
2	L34445-02	TP-12 (2-4)				✓	✓	✓	✓	✓	✓	✓		
3	L34445-03	TP-15_16 (2-13)				✓	✓	✓	✓	✓	✓	✓		
4	L34445-04	TP-20 (1-4)				✓	✓	✓	✓	✓	✓	✓		
5	L34445-04DUP	NONE				✓	✓	✓	✓	✓	✓	✓		
6	L34674-01	SB-06GT (1.5-10)				✓	✓	✓	✓	✓	✓	✓		
7	L34674-02	SB-07GT (0-4)				✓	✓	✓	✓	✓	✓	✓		
8	L34674-03	SB-09GT (8-12)				✓	✓	✓	✓	✓	✓	✓		
9	L34674-04	SB-09GT (18-22)				✓	✓	✓	✓	✓	✓	✓		
10	L34674-05	SB-12GT (0-27)				✓	✓	✓	✓	✓	✓	✓		
11	L34674-06	SB-13AL (0-25)				✓	✓	✓	✓	✓	✓	✓		
12	L34674-07	SB-14AL (0-15)				✓	✓	✓	✓	✓	✓	✓		
13	L34674-08	SB-14AL (15-35)				✓	✓	✓	✓	✓	✓	✓		
14	L34674-09	SB-15AL (0-25)				✓	✓	✓	✓	✓	✓	✓		
15	L34674-10	SB-15AL (25-50)				✓	✓	✓	✓	✓	✓	✓		
16	L34674-14	SB-09GT (8-12-DUPLIC				✓	✓	✓	✓	✓	✓	✓		

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

Saturated Paste

QC List Type: I-X-SP
QCListMatClass: SOLID
Bench Sheet List: I-X-SP
QC Ref: SP-SP
Group ID: SP-G-SP
Method Ref: USDA No. 60 (2)
SOP Ref: SOPSO008

WG415901

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 01/09/2017 14:13
Start Date/Time:
End Date/Time:

Sample	Login Comments
L34445-01	ZIPLOCK || In the Inorganic cooler.
L34445-02	ZIPLOCK || In the Inorganic cooler.
L34445-03	ZIPLOCK || In the Inorganic cooler.
L34445-04	ZIPLOCK || In the Inorganic cooler.
L34674-01	ZIPLOCK || Located in the Inorganic Cooler.
L34674-02	ZIPLOCK || Located in the Inorganic Cooler.
L34674-03	ZIPLOCK || Located in the Inorganic Cooler.
L34674-04	ZIPLOCK || Located in the Inorganic Cooler.
L34674-05	ZIPLOCK || Located in the Inorganic Cooler.
L34674-06	ZIPLOCK || Located in the Inorganic Cooler.
L34674-07	ZIPLOCK || Located in the Inorganic Cooler.
L34674-08	ZIPLOCK || Located in the Inorganic Cooler.
L34674-09	ZIPLOCK || Located in the Inorganic Cooler.
L34674-10	ZIPLOCK || Located in the Inorganic Cooler.
L34674-14	ZIPLOCK || Located in the Inorganic Cooler.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

L34674-1701201346

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG415901

Date Reported: 09-Jan-17
Run ID: R1490907
Date Analyzed: 09-Jan-17
ICAL Workgroup:
Instrument ID: SOILSPREP

L34445-01

Tag: Measured: 1/9/2017 2:15:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34445-02

Tag: Measured: 1/9/2017 2:17:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34445-03

Tag: Measured: 1/9/2017 2:19:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34445-04

Tag: Measured: 1/9/2017 2:21:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34445-04DUP

Tag: Measured: 1/9/2017 2:23:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	REPDATE		1			NEED					

L34674-01

Tag: Measured: 1/9/2017 2:25:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-02

Tag: Measured: 1/9/2017 2:27:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-03

Tag: Measured: 1/9/2017 2:29:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-04

Tag: Measured: 1/9/2017 2:31:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-05

Tag: Measured: 1/9/2017 2:33:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-06

Tag: Measured: 1/9/2017 2:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-07

Tag: Measured: 1/9/2017 2:37:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-08

Tag: Measured: 1/9/2017 2:39:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-09

Tag: Measured: 1/9/2017 2:41:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-10

Tag: Measured: 1/9/2017 2:43:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

L34674-14

Tag: Measured: 1/9/2017 2:45:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SATURATION PASTE	X-SP		1			NEED					

Monsanto Company

Project ID: L34674

Soil Preparation

WG415316 **Air Dry**

Sample	Date	SCN	SP AIRDRY
L34674-01	12/28/16 14:20		X
L34674-02	12/28/16 15:50		X
L34674-03	12/28/16 17:21		X
L34674-04	12/28/16 18:52		X
L34674-05	12/28/16 20:23		X
L34674-06	12/28/16 21:53		X
L34674-07	12/28/16 23:24		X
L34674-08	12/29/16 00:55		X
L34674-09	12/29/16 02:26		X
L34674-10	12/29/16 03:56		X
L34674-11	12/29/16 05:27		X
L34674-12	12/29/16 06:58		X
L34674-13	12/29/16 08:29		X
L34674-14	12/29/16 09:59		X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company
Project ID: L34674

Soil Analysis

WG415317 **Sample Weight**

Sample	Date	SCN	WEIGHT, SAMPLE
L34674-01	12/28/16 13:25		X
L34674-02	12/28/16 13:26		X
L34674-03	12/28/16 13:27		X
L34674-04	12/28/16 13:28		X
L34674-05	12/28/16 13:29		X
L34674-06	12/28/16 13:30		X
L34674-07	12/28/16 13:31		X
L34674-08	12/28/16 13:33		X
L34674-09	12/28/16 13:34		X
L34674-10	12/28/16 13:35		X
L34674-11	12/28/16 13:36		X
L34674-12	12/28/16 13:37		X
L34674-13	12/28/16 13:38		X
L34674-14	12/28/16 13:39		X

Monsanto Company

Project ID: L34674

Soil Analysis

WG415420 **Percent Solids**

Sample	Date	SCN	ERCENT MOISTUR	PERCENT SOLID
WG415420PBS	12/29/16 11:00			X
L34674-01	12/29/16 12:36			X
L34674-02	12/29/16 14:12			X
L34674-03	12/29/16 15:48			X
L34674-04	12/29/16 17:24			X
L34674-05	12/29/16 19:00			X
L34674-06	12/29/16 20:36			X
L34674-07	12/29/16 22:12			X
L34674-08	12/29/16 23:48			X
L34674-09	12/30/16 01:24			X
L34674-10	12/30/16 03:00			X
L34674-11	12/30/16 04:36			X
L34674-12	12/30/16 06:12			X
L34674-13	12/30/16 07:48			X
L34674-14	12/30/16 09:24			X
L34674-14DUP	12/30/16 11:00		X	X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company
Project ID: L34674

Soil Preparation

WG415621 **Soil Prep Sieve**

Sample	Date	SCN	SP SIEVE2000	SP SIEVE250
L34445-01	01/04/17 11:00		X	X
L34445-02	01/04/17 12:05		X	X
L34445-03	01/04/17 13:10		X	X
L34445-04	01/04/17 14:16		X	X
L34446-01	01/04/17 15:21		X	X
L34446-02	01/04/17 16:26		X	X
L34446-03	01/04/17 17:32		X	X
L34446-04	01/04/17 18:37		X	X
L34446-05	01/04/17 19:43		X	X
L34446-06	01/04/17 20:48		X	X
L34446-07	01/04/17 21:53		X	X
L34446-08	01/04/17 22:59		X	X
L34446-09	01/05/17 00:04		X	X
L34674-01	01/05/17 01:09		X	X
L34674-02	01/05/17 02:15		X	X
L34674-03	01/05/17 03:20		X	X
L34674-04	01/05/17 04:26		X	X
L34674-05	01/05/17 05:31		X	X
L34674-06	01/05/17 06:36		X	X
L34674-07	01/05/17 07:42		X	X
L34674-08	01/05/17 08:47		X	X
L34674-09	01/05/17 09:53		X	X
L34674-10	01/05/17 10:58		X	X
L34674-11	01/05/17 12:03		X	X
L34674-12	01/05/17 13:09		X	X
L34674-13	01/05/17 14:14		X	X

Monsanto Company

Project ID: L34674

Soil Preparation

WG415621 **Soil Prep Sieve**

Sample	Date	SCN	SP SIEVE2000	SP SIEVE250
L34674-14	01/05/17 15:19		X	X

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Project ID: L34674

Soil Preparation

WG415792 **3050 ICP ICPMS**

Sample	Date	SCN	DILUTION
WG415792PBS	01/06/17 10:00		X
WG415792LCSS1	01/06/17 14:31		X
WG415792LCSSD 1	01/06/17 19:02		X
WG415792LCSS2	01/06/17 23:34		X
WG415792LCSSD 2	01/07/17 04:05		X
L34674-01	01/07/17 08:36		X
L34674-02	01/07/17 13:08		X
L34674-03	01/07/17 17:39		X
L34674-04	01/07/17 22:10		X
L34674-04MS	01/08/17 02:42		X
L34674-04MSD	01/08/17 07:13		X
L34674-05	01/08/17 11:45		X
L34674-06	01/08/17 16:16		X
L34674-07	01/08/17 20:47		X
L34674-07MS	01/09/17 01:19		X
L34674-07MSD	01/09/17 05:50		X
L34674-08	01/09/17 10:21		X
L34674-09	01/09/17 14:53		X
L34674-10	01/09/17 19:24		X
L34674-11	01/09/17 23:55		X
L34674-12	01/10/17 04:27		X
L34674-13	01/10/17 08:58		X
L34674-14	01/10/17 13:30		X

Monsanto Company

Project ID: L34674

Soil Preparation

WG415901 **Saturated Paste**

Sample	Date	SCN	SATURATION PAST
L34445-01	01/09/17 14:15		X
L34445-02	01/09/17 14:17		X
L34445-03	01/09/17 14:19		X
L34445-04	01/09/17 14:21		X
L34445-04DUP	01/09/17 14:23		X
L34674-01	01/09/17 14:25		X
L34674-02	01/09/17 14:27		X
L34674-03	01/09/17 14:29		X
L34674-04	01/09/17 14:31		X
L34674-05	01/09/17 14:33		X
L34674-06	01/09/17 14:35		X
L34674-07	01/09/17 14:37		X
L34674-08	01/09/17 14:39		X
L34674-09	01/09/17 14:41		X
L34674-10	01/09/17 14:43		X
L34674-14	01/09/17 14:45		X

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Soil Analysis

WG415921 **Saturated Paste**

Sample	Date	SCN	CONDUCTIVITY	IAX PARTICLE SIZI	SAT PCNT	PH
L34445-01	01/10/17 08:30		X		X	X
L34445-02	01/10/17 09:42		X		X	X
L34445-03	01/10/17 10:55		X		X	X
L34445-04	01/10/17 12:08		X		X	X
L34445-04DUP	01/10/17 13:21		X		X	X
L34674-01	01/10/17 14:34		X		X	X
L34674-02	01/10/17 15:47		X		X	X
L34674-03	01/10/17 16:59		X		X	X
L34674-04	01/10/17 18:12		X		X	X
L34674-05	01/10/17 19:25		X		X	X
L34674-06	01/10/17 20:38		X		X	X
L34674-07	01/10/17 21:51		X		X	X
L34674-08	01/10/17 23:04		X		X	X
L34674-09	01/11/17 00:17		X		X	X
L34674-10	01/11/17 01:29		X			X
L34674-14	01/11/17 02:42		X		X	X
WG415921CCV1	01/11/17 03:55	PCN50759				X
WG415921CCV2	01/11/17 05:08	PCN50759				X
WG415921ICV	01/11/17 09:59	PCN50759				X

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Project ID: L34674

Wet Chemistry

WG415949 **NH3-KCL**

Sample	Date	SCN	AMMONIA
WG415949ICV	01/10/17 12:36	WI170103-8	X
WG415949ICB	01/10/17 12:37		X
WG415949LFB	01/10/17 12:39	WI161026-1	X
WG415879PBS	01/10/17 12:40		X
L34445-01	01/10/17 12:42		X
L34445-01DUP	01/10/17 12:43		X
L34445-02	01/10/17 12:45		X
L34445-02AS	01/10/17 12:46	WI161026-1	X
L34445-03	01/10/17 12:47		X
L34445-04	01/10/17 12:49		X
L34674-01	01/10/17 12:50		X
L34674-02	01/10/17 12:52		X
WG415949CCV1	01/10/17 12:53	WI161031-9	X
WG415949CCB1	01/10/17 12:55		X
L34674-03	01/10/17 12:56		X
L34674-04	01/10/17 12:57		X
L34674-05	01/10/17 12:59		X
L34674-06	01/10/17 13:00		X
L34674-07	01/10/17 13:02		X
L34674-07DUP	01/10/17 13:03		X
L34674-08	01/10/17 13:04		X
L34674-08AS	01/10/17 13:06	WI161026-1	X
L34674-09	01/10/17 13:07		X
L34674-10	01/10/17 13:09		X
WG415949CCV2	01/10/17 13:10	WI161031-9	X
WG415949CCB2	01/10/17 13:12		X

Monsanto Company

Project ID: L34674

Wet Chemistry

WG415949 **NH3-KCL**

Sample	Date	SCN	AMMONIA
L34674-14	01/10/17 13:13		X
WG415949CCV3	01/10/17 13:18	WI161031-9	X
WG415949CCB3	01/10/17 13:19		X

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Monsanto Company

Project ID: L34674

Metals Analysis

WG415986 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Mo	Se	U
WG415986ICV	01/12/17 18:27	MS161128-3	X	X	X	X	X
WG415986ICB	01/12/17 18:29		X	X	X	X	X
WG415986ICSA	01/12/17 18:31		X	X		X	X
WG415986ICSAB	01/12/17 18:33	MS161201-10	X	X	X	X	X
WG415792PBS	01/12/17 18:37		X	X	X	X	X
WG415792LCSS1	01/12/17 18:39	PCN52516	X	X	X	X	X
WG415792LCSSD1	01/12/17 18:41	PCN52516	X	X	X	X	X
L34674-01	01/12/17 18:43		X	X	X	X	X
L34674-01SDL	01/12/17 18:45		X	X	X	X	X
L34674-02	01/12/17 18:47		X	X	X		X
L34674-03	01/12/17 18:49		X	X	X	X	X
WG415986CCV1	01/12/17 18:51	MS161201-14	X	X	X	X	X
WG415986CCB1	01/12/17 18:53		X	X	X	X	X
L34674-04	01/12/17 18:55		X	X	X		X
L34674-05	01/12/17 18:57		X	X	X	X	X
L34674-06	01/12/17 18:59		X	X	X	X	X
L34674-07	01/12/17 19:01		X	X	X		X
L34674-07MS	01/12/17 19:03	MS161205-2	X	X	X	X	X
L34674-07MSD	01/12/17 19:06	MS161205-2	X	X	X	X	X
L34674-08	01/12/17 19:08		X	X	X	X	X
L34674-09	01/12/17 19:10		X	X	X	X	X
L34674-10	01/12/17 19:12		X	X	X	X	X
L34674-11	01/12/17 19:14		X	X			X
WG415986CCV2	01/12/17 19:16	MS161201-14	X	X	X	X	X
WG415986CCB2	01/12/17 19:19		X	X	X	X	X
L34674-12	01/12/17 19:21		X	X			X

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Monsanto Company
Project ID: L34674

Metals Analysis

WG415986 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Mo	Se	U
L34674-13	01/12/17 19:23		X	X			X
L34674-14	01/12/17 19:26		X	X	X	X	X
WG415986CCV3	01/12/17 19:28	MS161201-14	X	X	X	X	X
WG415986CCB3	01/12/17 19:30		X	X	X	X	X

Monsanto Company

Project ID: L34674

Wet Chemistry

WG415988 **N-NO3NO2-KCL**

Sample	Date	SCN	NITRATE/NITRITE	NITRITE
WG415988ICV	01/10/17 20:55	WI161209-3	X	X
WG415988ICB	01/10/17 20:56		X	X
WG415988LFB	01/10/17 21:00	WI170104-22	X	X
WG415879PBS	01/10/17 21:01		X	X
L34445-01	01/10/17 21:02		X	X
L34445-01DUP	01/10/17 21:04		X	X
L34445-02	01/10/17 21:05		X	X
L34445-02AS	01/10/17 21:06	WI170104-22	X	X
L34445-03	01/10/17 21:07		X	X
L34445-04	01/10/17 21:09		X	X
WG415988CCV1	01/10/17 21:10	WI170104-24	X	X
WG415988CCB1	01/10/17 21:13		X	X
L34674-01	01/10/17 21:14		X	X
L34674-02	01/10/17 21:15		X	X
L34674-03	01/10/17 21:16		X	X
L34674-04	01/10/17 21:18		X	X
L34674-05	01/10/17 21:19		X	X
L34674-06	01/10/17 21:20		X	X
L34674-07	01/10/17 21:21		X	X
L34674-08	01/10/17 21:23		X	X
L34674-09	01/10/17 21:24		X	X
L34674-10	01/10/17 21:25		X	X
WG415988CCV2	01/10/17 21:26	WI170104-24	X	X
WG415988CCB2	01/10/17 21:29		X	X
L34674-14	01/10/17 21:31		X	X
WG415988CCV3	01/10/17 21:33	WI170104-24	X	X

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Wet Chemistry

WG415988 **N-NO3NO2-KCL**

Sample	Date	SCN	NITRATE/NITRITE	NITRITE
WG415988CCB3	01/10/17 21:36		X	X

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Metals Analysis

WG416011 **Saturated Paste**

Sample	Date	SCN	Ca	K	Mg	Na
WG416011ICV	01/11/17 10:07	II161209-1	X	X	X	X
WG416011ICB	01/11/17 10:10		X	X	X	X
WG416011PQV	01/11/17 10:13	II161228-3	X	X	X	X
WG416011ICSAB	01/11/17 10:17	II161031-5	X	X	X	X
L34445-01	01/11/17 10:23		X	X	X	X
L34445-02	01/11/17 10:26		X	X	X	X
L34445-03	01/11/17 10:29		X	X	X	X
L34445-04	01/11/17 10:32		X	X	X	X
L34445-04DUP	01/11/17 10:36		X	X	X	X
L34674-01	01/11/17 10:39		X	X	X	X
L34674-02	01/11/17 10:42		X	X	X	X
L34674-03	01/11/17 10:45		X	X	X	X
L34674-04	01/11/17 10:48		X	X	X	X
L34674-05	01/11/17 10:51		X	X	X	X
WG416011CCV1	01/11/17 10:55	II161227-1	X	X	X	X
WG416011CCB1	01/11/17 10:58		X	X	X	X
L34674-06	01/11/17 11:01		X	X	X	X
L34674-07	01/11/17 11:04		X	X	X	X
L34674-08	01/11/17 11:07		X	X	X	X
L34674-09	01/11/17 11:11		X	X	X	X
L34674-10	01/11/17 11:14		X	X	X	X
L34674-14	01/11/17 11:17		X	X	X	X
WG416011CCV2	01/11/17 11:20	II161227-1	X	X	X	X
WG416011CCB2	01/11/17 11:23		X	X	X	X

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Project ID: L34674

Metals Analysis

WG416030 **ICP HW**

Sample	Date	SCN	B	Cd	Cd	K	Mo	Se
WG416030ICV	01/11/17 16:09	II161209-1	X	X	X	X	X	X
WG416030ICB	01/11/17 16:12		X	X	X	X	X	X
WG416030PQV	01/11/17 16:15	II161228-3	X					
WG416030ICSAB	01/11/17 16:18	II161031-5	X					
WG415942PBS	01/11/17 16:25		X					
L34445-01	01/11/17 16:28		X					
L34445-01DUP	01/11/17 16:31		X					
L34445-02	01/11/17 16:34		X					
L34445-03	01/11/17 16:37		X					
L34445-04	01/11/17 16:41		X					
L34674-01	01/11/17 16:44		X					
L34674-01AS	01/11/17 16:47	II170109-2	X					
L34674-01ASD	01/11/17 16:50	II170109-2	X					
L34674-02	01/11/17 16:53		X					
WG416030CCV1	01/11/17 16:57	II161227-1	X					
WG416030CCB1	01/11/17 17:00		X					
L34674-03	01/11/17 17:03		X					
L34674-04	01/11/17 17:06		X					
L34674-04SDL	01/11/17 17:09		X					
L34674-05	01/11/17 17:12		X					
L34674-06	01/11/17 17:16		X					
L34674-07	01/11/17 17:19		X					
L34674-08	01/11/17 17:22		X					
L34674-09	01/11/17 17:25		X					
L34674-10	01/11/17 17:28		X					
L34674-14	01/11/17 17:32		X					

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Metals Analysis

WG416030 **ICP HW**

Sample	Date	SCN	B	Cd	Cd	K	Mo	Se
WG416030CCV2	01/11/17 17:35	II161227-1	X					
WG416030CCB2	01/11/17 17:38		X					
WG416030CCV3	01/11/17 17:41	II161227-1	X					
WG416030CCB3	01/11/17 17:44		X					

Monsanto Company

Project ID: L34674

Metals Analysis

WG416037 **ICP 3050**

Sample	Date	SCN	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Cd	Co	Cr	Cr	Cu	Fe	Fe	Ga	K	Li	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	SiO2	Sn	Sr	Ti	Tl	V	Zn
WG416037ICV	01/11/17 15:03	II161203-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG416037ICB	01/11/17 15:06		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG416037PQV	01/11/17 15:09	II161228-3																									X												
WG416037ICSAB	01/11/17 15:12	II161206-1																									X												
WG415792PBS	01/11/17 15:18																										X												
WG415792LCSS2	01/11/17 15:27	PCN52708																									X												
WG415792LCSSD2	01/11/17 15:30	PCN52708																									X												
L34674-01	01/11/17 15:33																										X												
L34674-02	01/11/17 15:36																										X												
L34674-03	01/11/17 15:40																										X												
L34674-04	01/11/17 15:43																										X												
L34674-04SDL	01/11/17 15:46																										X												
WG416037CCV1	01/11/17 15:49	II161221-2																									X												
WG416037CCB1	01/11/17 15:52																										X												
L34674-04 MS	01/11/17 15:55	II170109-2																									X												
L34674-04 MSD	01/11/17 15:58	II170109-2																									X												
L34674-05	01/11/17 16:01																																						
L34674-06	01/11/17 16:05																																						
L34674-07	01/11/17 16:08																										X												
L34674-08	01/11/17 16:11																										X												
L34674-09	01/11/17 16:14																																						
L34674-10	01/11/17 16:17																										X												
L34674-14	01/11/17 16:20																										X												
WG416037CCV2	01/11/17 16:23	II161221-2																									X												
WG416037CCB2	01/11/17 16:26																										X												

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Soil Analysis

WG416048 **Neutralization Potential**

Sample	Date	SCN	CACO3	FIZZ TEST	PH
WG416048ICV	01/11/17 11:06	PCN50759			X
WG416048PBS	01/11/17 11:28		X		
WG416048LCSS	01/11/17 11:50	PCN49919	X		
L34446-01	01/11/17 12:12		X		
L34446-01MS	01/11/17 12:34	SI141024-2	X	X	
L34446-01DUP	01/11/17 12:56		X	X	
L34446-03	01/11/17 13:18		X		
L34446-05	01/11/17 13:41		X		
L34446-06	01/11/17 14:03		X		
L34446-07	01/11/17 14:25		X		
L34446-08	01/11/17 14:47		X		
WG416048CCV1	01/11/17 15:09	PCN50759			X
L34446-09	01/11/17 15:31		X		
L34674-11	01/11/17 15:53		X		
L34674-12	01/11/17 16:15		X		
L34674-13	01/11/17 16:37		X		
WG416048CCV2	01/11/17 16:59	PCN50759			X

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Project ID: L34674

Soil Analysis

WG416077 **Saturated Paste**

Sample	Date	SCN	MAX PARTICLE SIZI	SAT PCNT
L34674-10	01/12/17 09:15			X
L34674-10DUP	01/12/17 09:15			X

Monsanto Company

Project ID: L34674

Soil Analysis

WG416138 **Sulfur forms**

Sample	Date	SCN	JLFUR HCL RESIDU	LFUR HNO3 RESIDUR	ORGANIC RESI	FUR PYRITIC SULF	SULFUR SULFATE	SULFUR TOTAL	SULFUR MINUS SU
L34674-12	01/12/17 16:35		X	X	X	X	X	X	X
L34674-11	01/12/17 16:35		X	X	X	X	X	X	X
L34446-09	01/12/17 16:35		X	X	X	X	X	X	X
L34446-08	01/12/17 16:35		X	X	X	X	X	X	X
L34446-07	01/12/17 16:35		X	X	X	X	X	X	X
L34446-06	01/12/17 16:35		X	X	X	X	X	X	X
L34446-05	01/12/17 16:35		X	X	X	X	X	X	X
WG416138PBS	01/12/17 16:35							X	
L34446-03	01/12/17 16:35		X	X	X	X	X	X	X
L34446-02	01/12/17 16:35		X	X	X	X	X	X	X
L34446-01DUP	01/12/17 16:35				X	X	X	X	X
L34446-01MS	01/12/17 16:35	PCN49456						X	
L34446-01	01/12/17 16:35		X	X	X	X	X	X	X
WG416138LCSS	01/12/17 16:35	PCN51462						X	
L34674-13	01/12/17 16:35		X	X	X	X	X	X	X
L34446-04	01/12/17 16:35		X	X	X	X	X	X	X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L34674

Metals Analysis

WG416190 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Pb	Se
WG416190ICV	01/13/17 18:42	MS161128-3	X	X	X	X
WG416190ICB	01/13/17 18:45		X	X	X	X
WG416190ICSA	01/13/17 18:48		X	X		X
WG416190ICSAB	01/13/17 18:51	MS161201-10	X	X	X	X
WG415792PBS	01/13/17 18:58		X	X	X	X
WG415792LCSS1	01/13/17 19:01	PCN52516	X	X	X	X
WG415792LCSSD1	01/13/17 19:04	PCN52516	X	X	X	X
L34674-02	01/13/17 19:07					X
L34674-04	01/13/17 19:11					X
L34674-07	01/13/17 19:14					X
L34674-07MS	01/13/17 19:17	MS161205-2	X	X	X	X
L34674-07MSD	01/13/17 19:20	MS161205-2	X	X	X	X
WG416190CCV1	01/13/17 19:23	MS161201-14	X	X	X	X
WG416190CCB1	01/13/17 19:26		X	X	X	X
L34674-11	01/13/17 19:30					X
L34674-12	01/13/17 19:33					X
L34674-13	01/13/17 19:36					X
L34674-13SDL	01/13/17 19:39		X	X	X	X
WG416146PBS	01/13/17 19:42		X	X	X	X
WG416146LCSS1	01/13/17 19:46	PCN52516	X	X	X	X
WG416146LCSSD1	01/13/17 19:49	PCN52516	X	X	X	X
L34635-03	01/13/17 19:52			X	X	
L34635-03MS	01/13/17 19:55	MS161205-2	X	X	X	X
L34635-03MSD	01/13/17 19:58	MS161205-2	X	X	X	X
WG416190CCV2	01/13/17 20:01	MS161201-14	X	X	X	X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L34674

Metals Analysis

WG416190 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Pb	Se
WG416190CCB2	01/13/17 20:04		X	X	X	X
WG416190CCV3	01/13/17 20:07	MS161201-14	X	X	X	X
WG416190CCB3	01/13/17 20:10		X	X	X	X

ACZ Laboratories, Inc.
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Run Log by Workgroup

Monsanto Company

Project ID: L34674

Metals Analysis

WG416261 **ICP 3050**

Sample	Date	SCN	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Cd	Co	Cr	Cr	Cu	Fe	Fe	Ga	K	Li	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	SiO2	Sn	Sr	Ti	Tl	V	Zn
WG416261ICV	01/16/17 15:41	II161203-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG416261ICB	01/16/17 15:44		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG416261PQV	01/16/17 15:47	II161228-3																									X												
WG416261ICSAB	01/16/17 15:51	II161206-1																									X												
WG415792PBS	01/16/17 15:57																										X												
WG415792LCSS2	01/16/17 16:00	PCN52708																									X												
WG415792LCSSD2	01/16/17 16:03	PCN52708																									X												
L34674-04	01/16/17 16:06																										X												
L34674-04MS	01/16/17 16:09	II170109-2																									X												
L34674-04MSD	01/16/17 16:12	II170109-2																									X												
L34674-05	01/16/17 16:16																										X												
L34674-06	01/16/17 16:19																										X												
L34674-06SDL	01/16/17 16:22																										X												
L34674-09	01/16/17 16:25																										X												
WG416261CCV	01/16/17 16:28	II161221-2																									X												
WG416261CCB	01/16/17 16:31																										X												

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L34674

Soil Analysis

WG416304 **Carbon**

Sample	Date	SCN	TC	TIC	TOC
L34445-01	01/17/17 09:00		X		X
L34445-01DUP	01/17/17 12:15		X	X	X
L34445-02	01/17/17 15:31		X		X
L34445-03	01/17/17 18:47		X		X
L34445-04	01/17/17 22:03		X		X
L34674-01	01/18/17 01:19		X		X
L34674-02	01/18/17 04:35		X		X
L34674-03	01/18/17 07:51		X		X
L34674-04	01/18/17 11:07		X		X
L34674-05	01/18/17 14:22		X		X
L34674-06	01/18/17 17:38		X		X
L34674-07	01/18/17 20:54		X		X
L34674-08	01/19/17 00:10		X		X
L34674-09	01/19/17 03:26		X		X
L34674-10	01/19/17 06:42		X		X
L34674-14	01/19/17 09:58		X		X
WG416304LCSS	01/19/17 13:14	PCN52724	X	X	X
WG416304PBS	01/19/17 16:30		X	X	X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company
Project ID: L34674

Metals Analysis

WG416336 **CEC**

Sample	Date	SCN	Na
WG416336ICV	01/18/17 10:58	II170112-1	X
WG416336ICB	01/18/17 11:01		X
WG416336PQV	01/18/17 11:04	II161228-3	X
WG416336ICSAB	01/18/17 11:07	II161031-5	X
WG416214PBS	01/18/17 11:14		X
L34445-01DUP	01/18/17 11:20		X
L34674-01AS	01/18/17 11:36	IICECSPIKE	X
L34674-01ASD	01/18/17 11:39	IICECSPIKE	X
WG416336CCV1	01/18/17 11:46	II161227-1	X
WG416336CCB1	01/18/17 11:49		X
L34674-04SDL	01/18/17 11:58		X
WG416336CCV2	01/18/17 12:24	II161227-1	X
WG416336CCB2	01/18/17 12:27		X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company
Project ID: L34674

Soil Analysis

WG416430 **Organic Matter**

Sample	Date	SCN	ORGANIC MATTER
WG416430PBS	01/17/17 13:30		X
WG416430LCSS	01/17/17 14:40	PCN45409	X
L34445-01	01/17/17 15:50		X
L34445-01DUP	01/17/17 17:00		X
L34445-02	01/17/17 18:10		X
L34445-03	01/17/17 19:20		X
L34445-04	01/17/17 20:30		X
L34674-01	01/17/17 21:40		X
L34674-02	01/17/17 22:50		X
L34674-03	01/18/17 00:00		X
WG416430CCB1	01/18/17 01:10		X
WG416430CCV1	01/18/17 02:20	PCN45434	X
L34674-04	01/18/17 03:30		X
L34674-05	01/18/17 04:40		X
L34674-06	01/18/17 05:50		X
L34674-07	01/18/17 07:00		X
L34674-08	01/18/17 08:10		X
L34674-09	01/18/17 09:20		X
L34674-10	01/18/17 10:30		X
L34674-14	01/18/17 11:40		X
WG416430CCB2	01/18/17 12:50		X
WG416430CCV2	01/18/17 14:00	PCN45434	X

ACZ Laboratories, Inc.
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Run Log by Workgroup

Monsanto Company

Project ID: L34674

Soil Analysis

WG416470 **Sulfur total**

Sample	Date	SCN	SULFUR TOTAL
WG416470PBS	01/18/17 10:30		X
WG416470LCSS	01/18/17 10:53	PCN52722	X
L34445-01	01/18/17 11:16		X
L34445-01MS	01/18/17 11:40	PCN49456	X
L34445-01DUP	01/18/17 12:03		X
L34445-02	01/18/17 12:26		X
L34445-03	01/18/17 12:50		X
L34445-04	01/18/17 13:13		X
L34674-01	01/18/17 13:36		X
L34674-02	01/18/17 14:00		X
L34674-03	01/18/17 14:23		X
L34674-04	01/18/17 14:46		X
L34674-05	01/18/17 15:10		X
L34674-06	01/18/17 15:33		X
L34674-07	01/18/17 15:56		X
L34674-08	01/18/17 16:20		X
L34674-09	01/18/17 16:43		X
L34674-10	01/18/17 17:06		X
L34674-14	01/18/17 17:30		X

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID: L34674
Date Received: 12/16/2016 14:14
Received By:
Date Printed: 12/16/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA25266	9.6	NA	14	Yes

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID:	L34674
Date Received:	12/16/2016 14:14
Received By:	
Date Printed:	12/16/2016

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. L34674

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc
E-mail: leah@wolfmartininc.com, Rbenedetti@strata
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Rocky Ben **Sampler's Site Information** **State** Idaho **Zip code** 83276 **Time Zone** -7:00

***Sampler's Signature:** Rocky Benedetti

*I attest to the authenticity and validity of this sample. I understand that mislabeling the time/date/location, or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See attached list #1	See attached list #2						
SB-06GT (1.5-10)	9-13-16	SO	1 ea	X							
SB-07GT (0-4)	9-21-16	SO	1 ea	X							
SB-09GT (8-12)	9-21-16	SO	1 ea	X							
SB-09GT (18-22)	9-21-16	SO	1 ea	X							
SB-12GT (0-27)	9-22-16	SO	1 ea	X							
SB-13AL (0-25)	9-13-16	SO	1 ea	X							
SB-14AL (0-15)	9-23-16	SO	1 ea	X							
SB-14AL (15-35)	9-24-16	SO	1 ea	X							
SB-15AL (0-25)	9-11-16	SO	1 ea	X							
SB-15AL (25-50)	9-11-16	SO	1 ea	X							

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Chain of custody (1 of 2), Lists #1 and #2 of required testing for all samples are attached.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Rocky Benedetti	12-14-16 : 11:00AM	[illegible]	12/16/16 1415

FRMAD050.03.14.13 White - Return with sample. Yellow - Retain for your records.

L34674 Chain of Custody

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc
E-mail: leah@wolfmartininc.com, Rbenedetti@strata Stratageotech.com
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☒ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: R.Benedetti **Sampler's Site Information** **State** Idaho **Zip code** 83276 **Time Zone** -7:00

***Sampler's Signature:** Rocky Benedetti

*I attest to the authenticity and validity of this sample. I understand that misiabeling the time/date/location, or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? ☐

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See attached list #1	See attached list #2						
SB-01_02GT (1.5-6.5)-D	9-8-16/9-9-16	SO	1 ea	☐	☒	☐	☐	☐	☐	☐	☐
TP-6 (7-10)-Duplicate	8-26-16	SO	1 ea	☐	☒	☐	☐	☐	☐	☐	☐
TP-20 (12-14)-Duplicate	8-25-16	SO	1 ea	☐	☒	☐	☐	☐	☐	☐	☐
SB-09GT (8-12)-Duplicate	9-21-16	SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
		SO	1 ea	☐	☐	☐	☐	☐	☐	☐	☐
		SO	1 ea	☐	☐	☐	☐	☐	☐	☐	☐
		SO	1 ea	☐	☐	☐	☐	☐	☐	☐	☐
		SO	1 ea	☐	☐	☐	☐	☐	☐	☐	☐
		SO	1 ea	☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Chain of custody (2 of 2), Lists #1 and #2 of required testing for all samples are attached.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Rocky Benedetti	12-14-16 : 11:00 AM	WRL	12.16.16 1415

FRMAD050.03.14.13 White - Return with sample. Yellow - Retain for your records.

List # 1

Agronomic / Soil Chemistry Testing Program

Tests/Methods
• Arsenic (EPA 6020) • Boron (EPA 6010B) • Cadmium (EPA 6020) • Calcium (EPA 6010B) • Cation Exchange Capacity (USDA No. 60 (19) • Magnesium, soluble (EPA 6010B) • Molybdenum (EPA 6020) • Phosphorus (EPA 6010B) • Potassium (EPA 6010B) • Selenium, soluble (EPA 6020) • Uranium (EPA 6020) • Conductivity (SM2510B) • pH (EPA 600/2-78-054-3.2.2 • Carbon, total (ASA No. 9 29-2.2.4) • Carbon, total organic (ASA No. 9 29-2.2.4) • Organic Matter (USDA No. 60) • Saturation Percent (USDA No. 60) • Sulfur (ASTM D-4239-85C) • Nitrate as N (Calculation) • Nitrate/Nitrite (EPA 353.2) • Nitrite as N (EPA 353.2) • Nitrogen, ammonia (EPA 350.1)

List # 2

ABA/Whole Rock

Tests/Methods
• Whole Rock Analysis (EPA SW846 3050B / EPA 6020/6010B ICP/ICP-MS Analysis) As, Cd, Se, and U • Acid-Base Accounting (Modified Sobek) • Synthetic Precipitation Leaching Procedure – SPLP (EPA 1312 / EPA 6020/6010B ICP/ICP-MS) \As, Cd, and Se

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

March 06, 2017

Report to:
Molly Prickett
Monsanto Company
1853 Hwy 34 N
Soda Springs, ID 83276

cc: Leah Wolf Martin, Rocky Benedetti

Bill to:
Molly Pricket
Monsanto Company
1853 Highway 34
Soda Springs, ID 83276

Project ID: 4512184569
ACZ Project ID: L35520

Molly Prickett:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 13, 2017. This project has been assigned to ACZ's project number, L35520. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L35520. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 05, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

MONSANTO COMPANY

Level IV Data Package – L35520
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ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Summary

ACZ Project ID: ***L35520***

SAMPLE ID	LAB NO.	SAMPLE DATE	SAMPLE TIME
TP-6_7_9 (2-5)	L35520-01	8/24/2016	0:00
SB-12GT (0-27)	L35520-02	9/22/2016	0:00
SB-13AL (0-25)	L35520-03	9/13/2016	0:00
SB-14AL (15-35)	L35520-04	9/24/2016	0:00

Monsanto Company

March 06, 2017

Project ID: 4512184569
ACZ Project ID: L35520

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 4 soil samples from Monsanto Company on February 13, 2017. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L35520. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

Any analyses not performed within EPA recommended holding times have been qualified with an "H" flag.

(H1) While Geochemistry work on hardrock (core) materials do not have any regulatory hold time requirements, ACZ utilizes the hold times specified in the SW846 and specific method documents.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-6_7_9 (2-5)

ACZ Sample ID: ***L35520-01***
Date Sampled: *08/24/16 00:00*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								02/23/17 11:58	enb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0011	H	*	mg/L	0.0002	0.001	02/28/17 12:35	enb
Cadmium (1312)	M6020 ICP-MS	1	0.0004	BH	*	mg/L	0.0001	0.0005	02/28/17 12:35	enb
Selenium (1312)	M6020 ICP-MS	1	0.0005	H	*	mg/L	0.0001	0.0003	02/28/17 12:35	enb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								02/22/17 2:05	jjo

Note: This report is for additional analysis of the sample previously reported as ACZ project L34445-01.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-12GT (0-27)

ACZ Sample ID: ***L35520-02***
Date Sampled: *09/22/16 00:00*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								02/23/17 13:36	enb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0006	B	*	mg/L	0.0002	0.001	02/28/17 12:54	enb
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	02/28/17 12:54	enb
Selenium (1312)	M6020 ICP-MS	1	0.0003		*	mg/L	0.0001	0.0003	02/28/17 12:54	enb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								02/22/17 6:56	jjo

Note: This report is for additional analysis of the sample previously reported as ACZ project L34674-05.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-13AL (0-25)

ACZ Sample ID: ***L35520-03***
Date Sampled: *09/13/16 00:00*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								02/23/17 14:00	enb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0027		*	mg/L	0.0002	0.001	02/28/17 12:57	enb
Cadmium (1312)	M6020 ICP-MS	1	0.0005		*	mg/L	0.0001	0.0005	02/28/17 12:57	enb
Selenium (1312)	M6020 ICP-MS	1	0.001		*	mg/L	0.0001	0.0003	02/28/17 12:57	enb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								02/22/17 8:09	jjo

Note: This report is for additional analysis of the sample previously reported as ACZ project L34674-06.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-14AL (15-35)

ACZ Sample ID: ***L35520-04***
Date Sampled: *09/24/16 00:00*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								02/23/17 14:25	enb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0012		*	mg/L	0.0002	0.001	02/28/17 13:00	enb
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	02/28/17 13:00	enb
Selenium (1312)	M6020 ICP-MS	1	0.0003		*	mg/L	0.0001	0.0003	02/28/17 13:00	enb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								02/22/17 10:34	jjo

Note: This report is for additional analysis of the sample previously reported as ACZ project L34674-08.

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Monsanto Company

ACZ Project ID: ***L35520***

Arsenic (1312) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG418596													
WG418596ICV	ICV	02/28/17 12:06	MS161128-3	.05		.05154	mg/L	103	90	110			
WG418596ICB	ICB	02/28/17 12:09				U	mg/L		-0.0006	0.0006			
WG418596ICSA	ICSA	02/28/17 12:12				U	mg/L		-0.001	0.001			
WG418596ICSAB	ICSAB	02/28/17 12:15	MS161201-10	.02004		.02017	mg/L	101	80	120			
WG418244PBS	PBS	02/28/17 12:22				U	mg/L		-0.0006	0.0006			
WG418244LFB2	LFB	02/28/17 12:25	MS170117-3	.0501		.04841	mg/L	97	80	120			
L35520-01DUP	DUP	02/28/17 12:38			.0011	.00147	mg/L				29	20	RA
L35520-01MS	MS	02/28/17 12:41	MS170117-3	.0501	.0011	.0503	mg/L	98	75	125			
L35520-01MSD	MSD	02/28/17 12:44	MS170117-3	.0501	.0011	.0517	mg/L	101	75	125	3	20	
WG418596CCV1	CCV	02/28/17 12:47	MS170206-4	.1002		.0905	mg/L	90	90	110			
WG418596CCB1	CCB	02/28/17 12:50				U	mg/L		-0.0006	0.0006			
L35624-01SDL	SDL	02/28/17 13:07			.001	U	mg/L					10	
WG418596CCV2	CCV	02/28/17 13:10	MS170206-4	.1002		.09612	mg/L	96	90	110			
WG418596CCB2	CCB	02/28/17 13:13				U	mg/L		-0.0006	0.0006			

Cadmium (1312) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG418596													
WG418596ICV	ICV	02/28/17 12:06	MS161128-3	.05		.05072	mg/L	101	90	110			
WG418596ICB	ICB	02/28/17 12:09				U	mg/L		-0.0003	0.0003			
WG418596ICSA	ICSA	02/28/17 12:12		.00014		.00014	mg/L		-0.0005	0.0005			
WG418596ICSAB	ICSAB	02/28/17 12:15	MS161201-10	.02002		.01971	mg/L	98	80	120			
WG418244PBS	PBS	02/28/17 12:22				U	mg/L		-0.0003	0.0003			
WG418244LFB2	LFB	02/28/17 12:25	MS170117-3	.05005		.04712	mg/L	94	80	120			
L35520-01DUP	DUP	02/28/17 12:38			.0004	.00056	mg/L				33	20	RA
L35520-01MS	MS	02/28/17 12:41	MS170117-3	.05005	.0004	.04973	mg/L	99	75	125			
L35520-01MSD	MSD	02/28/17 12:44	MS170117-3	.05005	.0004	.04748	mg/L	94	75	125	5	20	
WG418596CCV1	CCV	02/28/17 12:47	MS170206-4	.1001		.09455	mg/L	94	90	110			
WG418596CCB1	CCB	02/28/17 12:50				U	mg/L		-0.0003	0.0003			
L35624-01SDL	SDL	02/28/17 13:07			U	U	mg/L					10	
WG418596CCV2	CCV	02/28/17 13:10	MS170206-4	.1001		.09545	mg/L	95	90	110			
WG418596CCB2	CCB	02/28/17 13:13				U	mg/L		-0.0003	0.0003			

Monsanto Company

ACZ Project ID: ***L35520***

Selenium (1312) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG418596													
WG418596ICV	ICV	02/28/17 12:06	MS161128-3	.05		.05358	mg/L	107	90	110			
WG418596ICB	ICB	02/28/17 12:09				U	mg/L		-0.0003	0.0003			
WG418596ICSA	ICSA	02/28/17 12:12		.0002		.0002	mg/L		-0.0003	0.0003			
WG418596ICSAB	ICSAB	02/28/17 12:15	MS161201-10	.02002		.02023	mg/L	101	80	120			
WG418244PBS	PBS	02/28/17 12:22				U	mg/L		-0.0003	0.0003			
WG418244LFB2	LFB	02/28/17 12:25	MS170117-3	.05005		.04816	mg/L	96	80	120			
L35520-01DUP	DUP	02/28/17 12:38			.0005	.00035	mg/L				35	20	RA
L35520-01MS	MS	02/28/17 12:41	MS170117-3	.05005	.0005	.05137	mg/L	102	75	125			
L35520-01MSD	MSD	02/28/17 12:44	MS170117-3	.05005	.0005	.0499	mg/L	99	75	125	3	20	
WG418596CCV1	CCV	02/28/17 12:47	MS170206-4	.25025		.2675	mg/L	107	90	110			
WG418596CCB1	CCB	02/28/17 12:50				.0002	mg/L		-0.0003	0.0003			
L35624-01SDL	SDL	02/28/17 13:07			.0106	.01085	mg/L				2	10	
WG418596CCV2	CCV	02/28/17 13:10	MS170206-4	.25025		.2488	mg/L	99	90	110			
WG418596CCB2	CCB	02/28/17 13:13				.00021	mg/L		-0.0003	0.0003			

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Monsanto Company ACZ Project ID: ***L35520***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L35520-01	WG418596	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Selenium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35520-02	WG418596	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Selenium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35520-03	WG418596	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Selenium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35520-04	WG418596	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Selenium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

No certification qualifiers associated with this analysis

ICPMS Dissolved 1312

QC List Type: QC-ICPMS-846
QCListMatClass: LIQUID
Bench Sheet List: I-ICPMS-1312
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-1312
Method Ref: M6020
SOP Ref: SOPII022

WG418596

ACZ Laboratories, Inc

Instrument ID: ICPMS5
Analyst: ENB
ACZ Dept: 33
Create Date: 02/28/2017 11:07
Start Date/Time:
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep	Dil	EC	TDS	AS MS 1312	BE MS 1312	CD MS 1312	PB MS 1312	SB MS 1312	SE MS 1312	TH MS 1312	TL MS 1312	U MS 1312	Dilution
1	WG418596ICV	MS161128-3				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
2	WG418596ICB	NONE				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
3	WG418596ICSA	MS161201-9				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
4	WG418596ICSAB	MS161201-10				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
5	WG418596WASH	NONE				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
6	WG418244PBS	NONE				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
7	WG418244LFB2	MS170117-3				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
8	L35178-01	HERMOSA TAILINGS				1			✓		✓	✓	✓	✓	✓	✓	✓	1
9	L35465-01	CRAIG STATION FLY AS				1			✓	✓		✓	✓	✓		✓		1
10	L35520-01	TP-6_7_9 (2-5)				1			✓		✓			✓				1
11	L35520-01DUP	NONE				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
12	L35520-01MS	MS170117-3				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
13	WG418596CCV1	MS170206-4				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
14	WG418596CCB1	NONE				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
15	L35520-01MSD	MS170117-3				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
16	L35520-02	SB-12GT (0-27)				1			✓		✓			✓				1
17	L35520-03	SB-13AL (0-25)				1			✓		✓			✓				1
18	L35520-04	SB-14AL (15-35)				1			✓		✓			✓				1
19	L35624-01	TAILINGS PASTE SAMPL				1	2670	1010	✓	✓	✓	✓	✓	✓	✓	✓	✓	1
20	L35624-01SDL	NONE				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
21	WG418596CCV2	MS170206-4				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1
22	WG418596CCB2	NONE				1			✓	✓	✓	✓	✓	✓	✓	✓	✓	1

Report Comments:

Internal Comments

AREV: ENB 2/28/17
Initials, Date

SREV: MH 2-28-17
Initials, Date

ICPMS Dissolved 1312

QC List Type: QC-ICPMS-846
QCListMatClass: LIQUID
Bench Sheet List: I-ICPMS-1312
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-1312
Method Ref: M6020
SOP Ref: SOPII022

WG418596

ACZ Laboratories, Inc

Instrument ID: ICPMS5
Analyst:
ACZ Dept: 33
Create Date: 02/28/2017 11:07
Start Date/Time:
End Date/Time:

Sample	Login Comments
L35178-01	ZIPLOCK -- RELOG OF L34285-01 || In the Inorganic cooelr.
L35465-01	BUCKET || In the Inorganic cooler.
L35520-01	ZIPLOCK -- RELOG OF L34445-01 || In the Inorganic cooler.
L35520-01MS	ICPMS Spike
L35520-01MSD	ICPMS Spike
L35520-02	ZIPLOCK -- RELOG OF L34674-05 || In the Inorganic cooler.
L35520-03	ZIPLOCK -- RELOG OF L34674-06 || In the Inorganic cooler.
L35520-04	ZIPLOCK -- RELOG OF L34674-08 || In the Inorganic cooler.
L35624-01	ZIPLOCK(2) || In the Inorganic cooler.
WG418244LFB2	ICPMS LFB

Report Comments:

Internal Comments

L35520-1703061623

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.

ICPMS DATA REVIEW CHECKLIST

AREV: ENB
Date: 2/28/17

SREV: MJH
Date: 2.28.17

Workgroup: 485996
Sample Type: 1312
Analysis Date: 2/28/17
Analyst: ENB

	Yes	No	N /A
1) Is the instrument ID on the bench sheet correct?	✓		
2) Has a passing method tune been performed within 24 hours?	✓		
3) Was the low calibration point dropped? If yes, notify PM of change to PQLs.			✓
4) Is the linear regression ≥ 0.995 for the analytes of interest?	✓		
5) Was the PQV standard analyzed & evaluated for DW samples ? (Fail in LIMS if no DW sxs in WG.)			✓
6) Do the dilution factors on the benchsheet match the sequence in the raw data?	✓		
7) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			✓
8) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
9) Are the % Recoveries of the internal standards within the method limits?	✓		
10) Are all of the QC critera listed in LIMS within specified limits?		✓	
11) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
12) Are all errors properly crossed out (i.e. single-line, dated & initialed)?	✓		
13) Is a current standard/reagent form attached to the workgroup?	✓		
14) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
520-01 DUP	RPD OUT → As, Be, Cd, Pb, Se, U	RA

Calibration Standards

6020/200.8 Stock #1: MS170206-1 SCN
6020/200.8 Stock #2: MS170206-2 SCN
6020/200.8 Stock #3: MS170206-3 SCN

PQV STD: MS161201-7 SCN
Exp. 3/1/2017

INT STD: MS160923-1 SCN
Exp. 8/25/2017

Nitric Acid: 52742 PCN

Hydrochloric Acid: 52890 PCN

VERIFIED: EWB

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG418596

Date Reported: 28-Feb-17
Run ID: R1507913
Date Analyzed: 28-Feb-17
ICAL Workgroup:
Instrument ID: ICPMS5

WG418596ICV

Tag:

Measured: 2/28/2017 12:06:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND	0.02131	1		mg/L	++	0.0004	0.002			
SREV	ANTIMONY	REC	107	1		%	++	0.0004	0.002			
SREV	ARSENIC	FOUND	0.05154	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	103	1		%	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND	0.04872	1		mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	REC	97	1		%	++	0.00005	0.0003			
SREV	CADMIUM	FOUND	0.05072	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	101	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.05154	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	103	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.05358	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	107	1		%	++	0.0001	0.0003			
SREV	THALLIUM	FOUND	0.05387	1		mg/L	++	0.0001	0.0005			
SREV	THALLIUM	REC	108	1		%	++	0.0001	0.0005			
SREV	THORIUM	FOUND	0.0528	1		mg/L	++	0.001	0.005			
SREV	THORIUM	REC	106	1		%	++	0.001	0.005			
SREV	URANIUM	FOUND	0.05423	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	108	1		%	++	0.0001	0.0005			

WG418596ICB

Tag:

Measured: 2/28/2017 12:09:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.0004	0.002			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.00005	0.0003			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	LEAD	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	THORIUM	FOUND		1	U	mg/L	++	0.001	0.005			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG418596ICSA

Tag:

Measured: 2/28/2017 12:12:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.0004	0.002			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND	0.000151	1	B	mg/L	++	0.00005	0.0003			
SREV	CADMIUM	FOUND	0.00014	1	B	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.0002	1	B	mg/L	++	0.0001	0.0003			
SREV	THORIUM	FOUND		1	U	mg/L	++	0.001	0.005			
SREV	URANIUM	FOUND	0.00013	1	B	mg/L	++	0.0001	0.0005			

WG418596ICSAB

Tag:

Measured: 2/28/2017 12:15:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND	0.01111	1		mg/L	++	0.0004	0.002			
SREV	ANTIMONY	REC	111	1		%	++	0.0004	0.002			
SREV	ARSENIC	FOUND	0.02017	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND	0.01885	1		mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	REC	94	1		%	++	0.00005	0.0003			
SREV	CADMIUM	FOUND	0.01971	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	98	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.01951	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	97	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.02023	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	101	1		%	++	0.0001	0.0003			
SREV	THALLIUM	FOUND	0.02013	1		mg/L	++	0.0001	0.0005			
SREV	THALLIUM	REC	100	1		%	++	0.0001	0.0005			
SREV	THORIUM	FOUND	0.0509	1		mg/L	++	0.001	0.005			
SREV	THORIUM	REC	102	1		%	++	0.001	0.005			
SREV	URANIUM	FOUND	0.02098	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	105	1		%	++	0.0001	0.0005			

WG418244PBS

Tag:

Measured: 2/28/2017 12:22:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.0004	0.002			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.00005	0.0003			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	LEAD	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	THORIUM	FOUND		1	U	mg/L	++	0.001	0.005			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG418244LFB2

Tag:

Measured: 2/28/2017 12:25:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND	0.011	1		mg/L	++	0.0004	0.002			
SREV	ANTIMONY	REC	110	1		%	++	0.0004	0.002			
SREV	ARSENIC	FOUND	0.04841	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	97	1		%	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND	0.04658	1		mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	REC	93	1		%	++	0.00005	0.0003			
SREV	CADMIUM	FOUND	0.04712	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	94	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.04705	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	94	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.04816	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	96	1		%	++	0.0001	0.0003			
SREV	THALLIUM	FOUND	0.04817	1		mg/L	++	0.0001	0.0005			
SREV	THALLIUM	REC	96	1		%	++	0.0001	0.0005			
SREV	THORIUM	FOUND	0.0496	1		mg/L	++	0.001	0.005			
SREV	THORIUM	REC	99	1		%	++	0.001	0.005			
SREV	URANIUM	FOUND	0.05103	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	102	1		%	++	0.0001	0.0005			

L35178-01

Tag: Measured: 2/28/2017 12:28:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	-MS-1312	.011	1		mg/L	++	0.0004	0.002		RA	
SREV	ARSENIC	-MS-1312	.0013	1		mg/L	++	0.0002	0.001		RA	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	LEAD	-MS-1312	.0308	1		mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0046	1		mg/L	++	0.0001	0.0003		RA TA	
SREV	THALLIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	THORIUM	-MS-1312		1	U	mg/L	++	0.001	0.005		RA TA TB	
SREV	URANIUM	U-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA TA	

L35465-01

Tag: Measured: 2/28/2017 12:31:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	-MS-1312	.0124	1		mg/L	++	0.0004	0.002		RA	
SREV	ARSENIC	-MS-1312	.0059	1		mg/L	++	0.0002	0.001		RA	
SREV	BERYLLIUM	-MS-1312		1	U	mg/L	++	0.00005	0.0003		RA	
SREV	LEAD	-MS-1312	.0003	1	B	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.141	1		mg/L	++	0.0001	0.0003		RA	
SREV	THALLIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	

L35520-01

Tag: Measured: 2/28/2017 12:35:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	ANTIMONY	REG		1	U	mg/L	++	0.0004	0.002		RA	
SREV	ARSENIC	-MS-1312	.0011	1	H	mg/L	++	0.0002	0.001		RA	
NEED	BERYLLIUM	REG	.00005	1	B	mg/L	++	0.00005	0.0003		RA	
SREV	CADMIUM	-MS-1312	.0004	1	BH	mg/L	++	0.0001	0.0005		RA	
NEED	LEAD	REG	.0006	1		mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0005	1	H	mg/L	++	0.0001	0.0003		RA	
NEED	THALLIUM	REG		1	U	mg/L	++	0.0001	0.0005		RA	
NEED	THORIUM	REG		1	U	mg/L	++	0.001	0.005		RA	
NEED	URANIUM	REG	.0002	1	B	mg/L	++	0.0001	0.0005		RA	

L35520-01DUP

Tag: Measured: 2/28/2017 12:38:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.0004	0.002			
SREV	ANTIMONY	RPD	0	1		%	++	0.0004	0.002		RA	
SREV	ARSENIC	FOUND	0.00147	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	RPD	29	1		%	ALRT	0.0002	0.001		RA	
SREV	BERYLLIUM	FOUND	0.000091	1	B	mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	RPD	58	1	B	%	ALRT	0.00005	0.0003		RA	
SREV	CADMIUM	FOUND	0.00056	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	RPD	33	1		%	ALRT	0.0001	0.0005		RA	
SREV	LEAD	FOUND	0.00093	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	RPD	43	1		%	ALRT	0.0001	0.0005		RA	
SREV	SELENIUM	FOUND	0.00035	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	RPD	35	1		%	ALRT	0.0001	0.0003		RA	
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	THALLIUM	RPD	0	1		%	++	0.0001	0.0005		RA	
SREV	THORIUM	FOUND		1	U	mg/L	++	0.001	0.005			
SREV	THORIUM	RPD	0	1		%	++	0.001	0.005		RA	
SREV	URANIUM	FOUND	0.00038	1	B	mg/L	++	0.0001	0.0005			
SREV	URANIUM	RPD	62	1	B	%	ALRT	0.0001	0.0005		RA	

L35520-01MS

Tag:

Measured: 2/28/2017 12:41:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND	0.01124	1		mg/L	++	0.0004	0.002			
SREV	ANTIMONY	REC	113	1		%	++	0.0004	0.002			
SREV	ARSENIC	FOUND	0.0503	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	98	1		%	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND	0.04854	1		mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	REC	96	1		%	++	0.00005	0.0003			
SREV	CADMIUM	FOUND	0.04973	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	99	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.04872	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	96	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.05137	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	102	1		%	++	0.0001	0.0003			
SREV	THALLIUM	FOUND	0.04955	1		mg/L	++	0.0001	0.0005			
SREV	THALLIUM	REC	99	1		%	++	0.0001	0.0005			
SREV	THORIUM	FOUND	0.0511	1		mg/L	++	0.001	0.005			
SREV	THORIUM	REC	102	1		%	++	0.001	0.005			
SREV	URANIUM	FOUND	0.05271	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	105	1		%	++	0.0001	0.0005			

L35520-01MSD

Tag:

Measured: 2/28/2017 12:44:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND	0.01071	1		mg/L	++	0.0004	0.002			
SREV	ANTIMONY	REC	107	1		%	++	0.0004	0.002			
SREV	ANTIMONY	RPD	5	1		%	++	0.0004	0.002			
SREV	ARSENIC	FOUND	0.0517	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	ARSENIC	RPD	3	1		%	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND	0.04735	1		mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	REC	94	1		%	++	0.00005	0.0003			
SREV	BERYLLIUM	RPD	2	1		%	++	0.00005	0.0003			
SREV	CADMIUM	FOUND	0.04748	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	94	1		%	++	0.0001	0.0005			
SREV	CADMIUM	RPD	5	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.0474	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	93	1		%	++	0.0001	0.0005			
SREV	LEAD	RPD	3	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.0499	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	99	1		%	++	0.0001	0.0003			
SREV	SELENIUM	RPD	3	1		%	++	0.0001	0.0003			
SREV	THALLIUM	FOUND	0.04808	1		mg/L	++	0.0001	0.0005			
SREV	THALLIUM	REC	96	1		%	++	0.0001	0.0005			
SREV	THALLIUM	RPD	3	1		%	++	0.0001	0.0005			
SREV	THORIUM	FOUND	0.0502	1		mg/L	++	0.001	0.005			
SREV	THORIUM	REC	100	1		%	++	0.001	0.005			
SREV	THORIUM	RPD	2	1		%	++	0.001	0.005			
SREV	URANIUM	FOUND	0.05127	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	102	1		%	++	0.0001	0.0005			
SREV	URANIUM	RPD	3	1		%	++	0.0001	0.0005			

WG418596CCV1

Tag: Measured: 2/28/2017 12:47:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND	0.01205	1		mg/L	++	0.0004	0.002			
SREV	ANTIMONY	REC	97	1		%	++	0.0004	0.002			
SREV	ARSENIC	FOUND	0.0905	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	90	1		%	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND	0.0944	1		mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	REC	94	1		%	++	0.00005	0.0003			
SREV	CADMIUM	FOUND	0.09455	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	94	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.2409	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	96	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.2675	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	107	1		%	++	0.0001	0.0003			
SREV	THALLIUM	FOUND	0.09777	1		mg/L	++	0.0001	0.0005			
SREV	THALLIUM	REC	98	1		%	++	0.0001	0.0005			
SREV	THORIUM	FOUND	0.0978	1		mg/L	++	0.001	0.005			
SREV	THORIUM	REC	98	1		%	++	0.001	0.005			
SREV	URANIUM	FOUND	0.09893	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	99	1		%	++	0.0001	0.0005			

WG418596CCB1

Tag: Measured: 2/28/2017 12:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.0004	0.002			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.00005	0.0003			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	LEAD	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.0002	1	B	mg/L	++	0.0001	0.0003			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	THORIUM	FOUND		1	U	mg/L	++	0.001	0.005			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

L35520-02

Tag: Measured: 2/28/2017 12:54:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0006	1	B	mg/L	++	0.0002	0.001		RA	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0003	1		mg/L	++	0.0001	0.0003		RA	

L35520-03

Tag: Measured: 2/28/2017 12:57:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0027	1		mg/L	++	0.0002	0.001		RA	
SREV	CADMIUM	-MS-1312	.0005	1		mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.001	1		mg/L	++	0.0001	0.0003		RA	

L35520-04

Tag: Measured: 2/28/2017 1:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0012	1		mg/L	++	0.0002	0.001		RA	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0003	1		mg/L	++	0.0001	0.0003		RA	

L35624-01

Tag: Measured: 2/28/2017 1:03:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	-MS-1312	.0059	1		mg/L	++	0.0004	0.002		RA	
SREV	ARSENIC	-MS-1312	.001	1		mg/L	++	0.0002	0.001		RA	
SREV	BERYLLIUM	-MS-1312		1	U	mg/L	++	0.00005	0.0003		RA	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	LEAD	-MS-1312	.194	1		mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0106	1		mg/L	++	0.0001	0.0003		RA TA	
SREV	THALLIUM	-MS-1312	.0001	1	B	mg/L	++	0.0001	0.0005		RA	
SREV	THORIUM	-MS-1312		1	U	mg/L	++	0.001	0.005		RA TA TB	
SREV	URANIUM	U-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA TA	

L35624-01SDL

Tag: Measured: 2/28/2017 1:07:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	D	3	1		%	++	0.0004	0.002			
SREV	ANTIMONY	FOUND	0.00121	1	B	mg/L	++	0.0004	0.002			
SREV	ANTIMONY	REG	0.00605	1	B	mg/L	++	0.0004	0.002			
SREV	ARSENIC	D		1	U	%	++	0.0002	0.001			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	ARSENIC	REG	0	1	U	mg/L	++	0.0002	0.001			
SREV	BERYLLIUM	D		1	U	%	++	0.00005	0.0003			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	REG	0	1	U	mg/L	++	0.00005	0.0003			
SREV	CADMIUM	D		1	U	%	++	0.0001	0.0005			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REG	0	1	U	mg/L	++	0.0001	0.0005			
SREV	LEAD	D	1	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.03942	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REG	0.1971	1		mg/L	++	0.0001	0.0005			
SREV	SELENIUM	D	2	1		%	++	0.0001	0.0003			
SREV	SELENIUM	FOUND	0.00217	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REG	0.01085	1		mg/L	++	0.0001	0.0003			
SREV	THALLIUM	D		1	U	%	++	0.0001	0.0005			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	THALLIUM	REG	0	1	U	mg/L	++	0.0001	0.0005			
SREV	THORIUM	D		1	U	%	++	0.001	0.005			
SREV	THORIUM	FOUND		1	U	mg/L	++	0.001	0.005			
SREV	THORIUM	REG	0	1	U	mg/L	++	0.001	0.005			
SREV	URANIUM	D		1	U	%	++	0.0001	0.0005			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	URANIUM	REG	0	1	U	mg/L	++	0.0001	0.0005			

WG418596CCV2

Tag:

Measured: 2/28/2017 1:10:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND	0.01215	1		mg/L	++	0.0004	0.002			
SREV	ANTIMONY	REC	97	1		%	++	0.0004	0.002			
SREV	ARSENIC	FOUND	0.09612	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	96	1		%	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND	0.09456	1		mg/L	++	0.00005	0.0003			
SREV	BERYLLIUM	REC	94	1		%	++	0.00005	0.0003			
SREV	CADMIUM	FOUND	0.09545	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	95	1		%	++	0.0001	0.0005			
SREV	LEAD	FOUND	0.2423	1		mg/L	++	0.0001	0.0005			
SREV	LEAD	REC	97	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.2488	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	99	1		%	++	0.0001	0.0003			
SREV	THALLIUM	FOUND	0.09874	1		mg/L	++	0.0001	0.0005			
SREV	THALLIUM	REC	99	1		%	++	0.0001	0.0005			
SREV	THORIUM	FOUND	0.0992	1		mg/L	++	0.001	0.005			
SREV	THORIUM	REC	99	1		%	++	0.001	0.005			
SREV	URANIUM	FOUND	0.1004	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	100	1		%	++	0.0001	0.0005			

WG418596CCB2

Tag:

Measured: 2/28/2017 1:13:00 PM

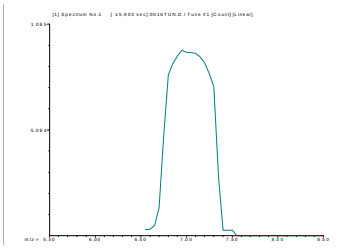
Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ANTIMONY	FOUND		1	U	mg/L	++	0.0004	0.002			
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	BERYLLIUM	FOUND		1	U	mg/L	++	0.00005	0.0003			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	LEAD	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.00021	1	B	mg/L	++	0.0001	0.0003			
SREV	THALLIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	THORIUM	FOUND		1	U	mg/L	++	0.001	0.005			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

6020 QC Tune Report

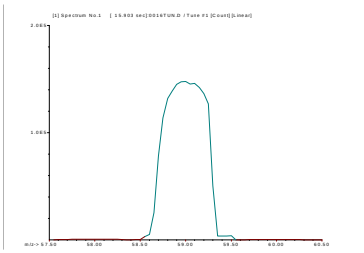
Data File: C:\ICPCHEM\1\DATA\170228at.b\0016TUN.D
Date Acquired: Feb 28 2017 11:36 am
Acq. Method: TN6020.M
Operator: SCP
Sample Name: 6020 Tune
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

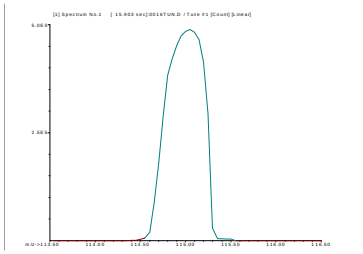
Element	Actual	Required	Flag
7 Li	1.47	5.00	
59 Co	1.84	5.00	
115 In	1.50	5.00	
205 Tl	2.04	5.00	



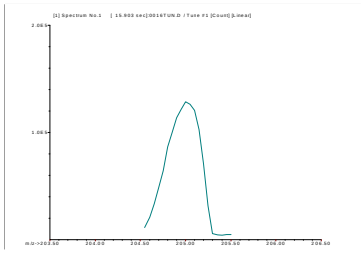
7 Li
Mass Calib.
Actual: 7.00
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.00
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



115 In
Mass Calib.
Actual: 115.05
Required: 114.90 - 115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



205 Tl
Mass Calib.
Actual: 205.00
Required: 204.90 - 205.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:

Calibration Coefficients

Sample Name: **ICV**
Date Acquired: **Feb 28 2017 12:06 pm**
Acq. Method: **ACZ.M**
Current Method Pa**\ICPCHEM\1\DATA\wg418596.b**
Calibration Path**\ICPCHEM\1\DATA\wg418596.b**

Element Name	Mass	Calibration Corr Coef	Tune Step	IS Ref
Be	9	0.9990	3	6
B	11	0.9990	3	6
Al	27	0.9994	3	72
V	51	0.9996	2	45
Cr	52	0.9993	2	45
Mn	55	0.9997	3	72
Fe	56	0.9996	1	45
Co	59	0.9998	3	72
Ni	60	0.9995	2	45
Cu	63	0.9994	2	45
Zn	66	0.9996	3	72
As	75	0.9995	2	45
Se	78	0.9998	1	45
Mo	98	0.9991	3	115
Ag	107	0.9996	3	115
Cd	111	0.9994	3	115
Sn	118	0.9993	3	115
Sb	121	0.9994	3	115
Te	125	0.9997	3	115
Cs	133	0.9998	3	115
Ba	137	0.9994	3	115
Tl	205	1.0000	3	209
Pb	208	0.9998	3	209
Th	232	0.9998	3	209
U	238	0.9999	3	209

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\001CAL
Date Acquired: Feb 28 2017 11:43 am
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 11:45 am
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	954099.81	A	28330.00	2.97
9	Be	325.57	P	52.95	16.26
11	B	14859.92	P	86.02	0.58
27	Al	26299.61	P	3589.00	13.65
45	Sc	1705865.00	A	5457.00	0.32
45	Sc	283092.09	P	2478.00	0.88
45	Sc	3838947.00	A	36630.00	0.95
51	V	4484.17	P	295.10	6.58
52	Cr	435.58	P	53.48	12.28
55	Mn	21926.89	P	364.30	1.66
56	Fe	20423.86	P	276.80	1.36
59	Co	954.51	P	60.59	6.35
60	Ni	115.56	P	26.74	23.14
63	Cu	5445.66	P	98.50	1.81
66	Zn	15691.06	P	154.40	0.98
72	Ge	524935.88	P	5869.00	1.12
72	Ge	146516.59	P	990.60	0.68
72	Ge	842083.50	P	6131.00	0.73
74	Ge	736953.13	P	6042.00	0.82
74	Ge	213455.59	P	1338.00	0.63
74	Ge	1151580.00	A	16170.00	1.40
75	As	161.12	P	16.44	10.20
78	Se	19.11	P	2.84	14.83
98	Mo	168.20	P	8.37	4.98
99			P		
106	Cd		P		
107	Ag	166.67	P	33.83	20.30
108	Cd		P		
111	Cd	99.45	P	38.85	39.07
115	In	2264722.00	A	3048.00	0.13
115	In	605219.13	P	1527.00	0.25
115	In	2498997.00	A	17070.00	0.68
118	Sn	1334.55	P	69.16	5.18
121	Sb	286.12	P	22.01	7.69
125	Te	65.56	P	18.36	28.01
133	Cs	1471.24	P	47.42	3.22
137	Ba	214.45	P	10.71	4.99
159	Tb	3048781.00	A	11620.00	0.38
205	Tl	785.61	P	22.69	2.89
206	(Pb)		P		
207	(Pb)		P		
208	Pb	1482.31	P	13.47	0.91
209	Bi	3397467.00	A	15500.00	0.46
232	Th	708.93	P	49.15	6.93
238	U	302.24	P	35.95	11.90

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\002CAL
Date Acquired: Feb 28 2017 11:47 am
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 11:45 am
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	949623.31	A	17400.00	1.83
9	Be	278.90	P	24.11	8.64
11	B	14344.94	P	312.30	2.18
27	Al	24273.49	P	496.10	2.04
45	Sc	1634926.00	A	20190.00	1.23
45	Sc	279848.59	P	1643.00	0.59
45	Sc	3819233.00	A	17430.00	0.46
51	V	4510.84	P	201.10	4.46
52	Cr	418.91	P	33.72	8.05
55	Mn	21970.25	P	358.50	1.63
56	Fe	19474.25	P	58.08	0.30
59	Co	800.05	P	49.10	6.14
60	Ni	128.89	P	22.69	17.60
63	Cu	5276.69	P	41.71	0.79
66	Zn	15778.96	P	120.30	0.76
72	Ge	508608.50	P	5625.00	1.11
72	Ge	144847.50	P	102.10	0.07
72	Ge	835579.19	P	4636.00	0.55
74	Ge	714852.69	P	4375.00	0.61
74	Ge	210204.41	P	1464.00	0.70
74	Ge	1154400.00	A	11460.00	0.99
75	As	155.56	P	32.72	21.03
78	Se	17.11	P	1.90	11.08
98	Mo	158.93	P	17.40	10.95
99			P		
106	Cd		P		
107	Ag	183.34	P	15.28	8.33
108	Cd		P		
111	Cd	114.24	P	9.17	8.03
115	In	2194081.00	A	21090.00	0.96
115	In	600956.50	P	4939.00	0.82
115	In	2506798.00	A	6422.00	0.26
118	Sn	1281.21	P	27.96	2.18
121	Sb	286.67	P	34.20	11.93
125	Te	86.67	P	3.33	3.85
133	Cs	1501.24	P	30.98	2.06
137	Ba	208.90	P	13.47	6.45
159	Tb	3092781.00	A	18800.00	0.61
205	Tl	522.25	P	35.01	6.70
206	(Pb)		P		
207	(Pb)		P		
208	Pb	1311.19	P	45.38	3.46
209	Bi	3379413.00	A	18810.00	0.56
232	Th	592.26	P	48.80	8.24
238	U	333.35	P	24.04	7.21

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\003CAL
Date Acquired: Feb 28 2017 11:50 am
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 11:48 am
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	932694.19	A	14800.00	1.59
9	Be	247.79	P	11.71	4.73
11	B	13754.39	P	332.60	2.42
27	Al	23101.67	P	217.70	0.94
45	Sc	1647256.00	A	18710.00	1.14
45	Sc	275256.59	P	3886.00	1.41
45	Sc	3711305.00	A	20360.00	0.55
51	V	4565.32	P	180.30	3.95
52	Cr	406.69	P	63.51	15.62
55	Mn	18459.87	P	416.80	2.26
56	Fe	21824.45	P	53.42	0.24
59	Co	564.48	P	54.20	9.60
60	Ni	103.34	P	23.33	22.58
63	Cu	5186.65	P	175.30	3.38
66	Zn	25448.24	P	467.60	1.84
72	Ge	511494.31	P	4668.00	0.91
72	Ge	141909.09	P	1802.00	1.27
72	Ge	821753.81	P	5683.00	0.69
74	Ge	725523.00	P	4950.00	0.68
74	Ge	208110.70	P	1624.00	0.78
74	Ge	1122658.00	A	6638.00	0.59
75	As	158.90	P	18.96	11.93
78	Se	14.67	P	2.08	14.20
98	Mo	118.87	P	9.81	8.26
99			P		
106	Cd		P		
107	Ag	154.45	P	12.62	8.17
108	Cd		P		
111	Cd	80.21	P	27.39	34.15
115	In	2229971.00	A	13480.00	0.60
115	In	588896.69	P	2540.00	0.43
115	In	2448174.00	A	31240.00	1.28
118	Sn	3760.64	P	83.54	2.22
121	Sb	265.56	P	20.71	7.80
125	Te	83.34	P	17.64	21.17
133	Cs	1347.89	P	34.70	2.57
137	Ba	366.69	P	29.63	8.08
159	Tb	3009424.00	A	23770.00	0.79
205	Tl	378.91	P	17.11	4.52
206	(Pb)		P		
207	(Pb)		P		
208	Pb	895.60	P	80.03	8.94
209	Bi	3342245.00	A	75990.00	2.27
232	Th	413.36	P	49.10	11.88
238	U	160.01	P	8.82	5.51

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\004CALS.D\004CALS.D#
Date Acquired: Feb 28 2017 11:53 am
Operator:
Sample Name: PQV Std
Misc Info:
Vial Number: 1103
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 11:52 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	906716.19	A	12070.00	1.33
9 Be	904.50	P	44.39	4.91
11 B	15204.68	P	271.10	1.78
27 Al	77976.11	P	853.50	1.09
45 Sc	1573781.00	A	19310.00	1.23
45 Sc	271637.69	P	1922.00	0.71
45 Sc	3585789.00	A	4592.00	0.13
51 V	7867.90	P	342.70	4.36
52 Cr	7409.89	P	181.80	2.45
55 Mn	66306.80	P	289.70	0.44
56 Fe	94884.85	P	967.60	1.02
59 Co	4487.50	P	142.50	3.18
60 Ni	4508.64	P	119.40	2.65
63 Cu	12288.87	P	340.00	2.77
66 Zn	21829.08	P	155.40	0.71
72 Ge	486005.41	P	4677.00	0.96
72 Ge	139853.00	P	1567.00	1.12
72 Ge	791648.00	P	5111.00	0.65
74 Ge	684936.00	P	1682.00	0.25
74 Ge	204560.50	P	1466.00	0.72
74 Ge	1092271.00	A	12930.00	1.18
75 As	706.71	P	31.80	4.50
78 Se	67.56	P	7.12	10.54
98 Mo	16066.40	P	389.70	2.43
99		P		
106 Cd		P		
107 Ag	2774.82	P	111.00	4.00
108 Cd		P		
111 Cd	1031.38	P	61.46	5.96
115 In	2122889.00	A	28860.00	1.36
115 In	571267.38	P	3100.00	0.54
115 In	2353924.00	A	34990.00	1.49
118 Sn	3638.38	P	34.23	0.94
121 Sb	17338.07	P	517.80	2.99
125 Te	1735.73	P	18.96	1.09
133 Cs	26464.62	P	550.50	2.08
137 Ba	8197.14	P	330.20	4.03
159 Tb	2875840.00	A	49670.00	1.73
205 Tl	7275.59	P	181.60	2.50
206 (Pb)		P		
207 (Pb)		P		
208 Pb	10487.51	P	109.10	1.04
209 Bi	3202367.00	A	27500.00	0.86
232 Th	95966.22	P	3047.00	3.18
238 U	9947.50	P	99.45	1.00

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	906716.25	1.33	932694.25	97.2	59.5 - 120.4	
45 Sc	1573780.80	1.23	1647256.50	95.5	59.5 - 120.4	
45 Sc	271637.72	0.71	275256.59	98.7	59.5 - 120.4	
45 Sc	3585788.80	0.13	3711305.00	96.6	59.5 - 120.4	
72 Ge	486005.34	0.96	511494.31	95.0	59.5 - 120.4	
72 Ge	139853.03	1.12	141909.08	98.6	59.5 - 120.4	
72 Ge	791647.94	0.65	821753.81	96.3	59.5 - 120.4	
74 Ge	684936.00	0.25	725522.94	94.4	59.5 - 120.4	
74 Ge	204560.45	0.72	208110.73	98.3	59.5 - 120.4	
74 Ge	1092271.50	1.18	1122658.10	97.3	59.5 - 120.4	
115 In	2122888.50	1.36	2229970.80	95.2	59.5 - 120.4	
115 In	571267.38	0.54	588896.69	97.0	59.5 - 120.4	
115 In	2353924.30	1.49	2448174.00	96.2	59.5 - 120.4	
159 Tb	2875840.30	1.73	3009423.80	95.6	59.5 - 120.4	
209 Bi	3202367.00	0.86	3342244.50	95.8	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\005CALS.D\005CALS.D#
Date Acquired: Feb 28 2017 11:56 am
Operator:
Sample Name: Level 3 Std
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 11:55 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	918745.69	A	17730.00	1.93
9 Be	62192.71	P	1105.00	1.78
11 B	17304.73	P	532.90	3.08
27 Al	1426130.00	A	23810.00	1.67
45 Sc	1598153.00	A	24710.00	1.55
45 Sc	279314.19	P	3007.00	1.08
45 Sc	3657921.00	A	51370.00	1.40
51 V	77999.59	P	985.60	1.26
52 Cr	77026.02	P	779.10	1.01
55 Mn	444162.19	P	1954.00	0.44
56 Fe	941532.31	A	2091.00	0.22
59 Co	369674.00	P	221.60	0.06
60 Ni	76998.16	P	1376.00	1.79
63 Cu	209519.80	P	1450.00	0.69
66 Zn	264069.59	P	2063.00	0.78
72 Ge	486795.00	P	4359.00	0.90
72 Ge	142428.09	P	1075.00	0.75
72 Ge	806886.88	P	3807.00	0.47
74 Ge	693964.13	P	4518.00	0.65
74 Ge	208734.91	P	2651.00	1.27
74 Ge	1111620.00	A	7591.00	0.68
75 As	11817.37	P	159.10	1.35
78 Se	13672.29	P	42.62	0.31
98 Mo	140327.80	P	566.80	0.40
99		P		
106 Cd		P		
107 Ag	57189.85	P	656.30	1.15
108 Cd		P		
111 Cd	43198.22	P	237.20	0.55
115 In	2128919.00	A	44650.00	2.10
115 In	586554.81	P	9645.00	1.64
115 In	2388594.00	A	15820.00	0.66
118 Sn	131042.00	P	728.50	0.56
121 Sb	21545.54	P	246.40	1.14
125 Te	7775.74	P	157.00	2.02
133 Cs	567373.69	P	1052.00	0.19
137 Ba	186053.30	P	1700.00	0.91
159 Tb	2937904.00	A	32450.00	1.10
205 Tl	322516.81	P	1338.00	0.41
206 (Pb)		P		
207 (Pb)		P		
208 Pb	1098882.00	P	9618.00	0.88
209 Bi	3238025.00	A	20620.00	0.64
232 Th	435105.59	P	5701.00	1.31
238 U	445878.09	P	3967.00	0.89

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	918745.69	1.93	932694.25	98.5	59.5 - 120.4	
45 Sc	1598153.30	1.55	1647256.50	97.0	59.5 - 120.4	
45 Sc	279314.25	1.08	275256.59	101.5	59.5 - 120.4	
45 Sc	3657920.80	1.40	3711305.00	98.6	59.5 - 120.4	
72 Ge	486795.00	0.90	511494.31	95.2	59.5 - 120.4	
72 Ge	142428.16	0.75	141909.08	100.4	59.5 - 120.4	
72 Ge	806886.88	0.47	821753.81	98.2	59.5 - 120.4	
74 Ge	693964.06	0.65	725522.94	95.7	59.5 - 120.4	
74 Ge	208734.94	1.27	208110.73	100.3	59.5 - 120.4	
74 Ge	1111620.30	0.68	1122658.10	99.0	59.5 - 120.4	
115 In	2128919.30	2.10	2229970.80	95.5	59.5 - 120.4	
115 In	586554.81	1.64	588896.69	99.6	59.5 - 120.4	
115 In	2388594.00	0.66	2448174.00	97.6	59.5 - 120.4	
159 Tb	2937903.80	1.10	3009423.80	97.6	59.5 - 120.4	
209 Bi	3238025.30	0.64	3342244.50	96.9	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\006CALS.D\006CALS.D#
Date Acquired: Feb 28 2017 11:59 am
Operator:
Sample Name: Level 4 Std
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 11:58 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	919914.69	A	11480.00	1.25
9	Be	280864.69	P	1483.00	0.53
11	B	28716.64	P	303.70	1.06
27	Al	6167579.00	A	41850.00	0.68
45	Sc	1620255.00	A	24600.00	1.52
45	Sc	273502.69	P	1253.00	0.46
45	Sc	3604382.00	A	23600.00	0.65
51	V	333450.00	P	4434.00	1.33
52	Cr	350131.69	P	2631.00	0.75
55	Mn	2018623.00	A	24160.00	1.20
56	Fe	4275744.00	A	52690.00	1.23
59	Co	1730942.00	A	27430.00	1.58
60	Ni	352507.59	P	2671.00	0.76
63	Cu	960603.19	A	7595.00	0.79
66	Zn	1188850.00	A	10720.00	0.90
72	Ge	494943.31	P	8190.00	1.65
72	Ge	140126.70	P	993.70	0.71
72	Ge	785559.19	P	9120.00	1.16
74	Ge	709507.88	P	13710.00	1.93
74	Ge	207107.41	P	369.60	0.18
74	Ge	1096417.00	A	11120.00	1.01
75	As	52962.53	P	832.80	1.57
78	Se	63639.61	P	796.30	1.25
98	Mo	643277.81	P	8723.00	1.36
99			P		
106	Cd		P		
107	Ag	267495.81	P	4249.00	1.59
108	Cd		P		
111	Cd	196355.00	P	2109.00	1.07
115	In	2170841.00	A	22890.00	1.05
115	In	580562.00	P	2298.00	0.40
115	In	2386174.00	A	22180.00	0.93
118	Sn	581971.00	P	8023.00	1.38
121	Sb	94426.26	P	1708.00	1.81
125	Te	34715.75	P	459.20	1.32
133	Cs	2633345.00	A	34410.00	1.31
137	Ba	829616.19	P	12920.00	1.56
159	Tb	2921436.00	A	27900.00	0.96
205	Tl	1516720.00	A	24380.00	1.61
206	(Pb)		A		
207	(Pb)		A		
208	Pb	5223324.00	A	51270.00	0.98
209	Bi	3277139.00	A	7308.00	0.22
232	Th	2142640.00	A	29880.00	1.39
238	U	2069049.00	A	37350.00	1.81

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	919914.69	1.25	932694.25	98.6	59.5 - 120.4	
45	Sc	1620255.00	1.52	1647256.50	98.4	59.5 - 120.4	
45	Sc	273502.72	0.46	275256.59	99.4	59.5 - 120.4	
45	Sc	3604382.50	0.65	3711305.00	97.1	59.5 - 120.4	
72	Ge	494943.31	1.65	511494.31	96.8	59.5 - 120.4	
72	Ge	140126.72	0.71	141909.08	98.7	59.5 - 120.4	
72	Ge	785559.13	1.16	821753.81	95.6	59.5 - 120.4	
74	Ge	709507.94	1.93	725522.94	97.8	59.5 - 120.4	
74	Ge	207107.42	0.18	208110.73	99.5	59.5 - 120.4	
74	Ge	1096417.10	1.01	1122658.10	97.7	59.5 - 120.4	
115	In	2170841.30	1.05	2229970.80	97.3	59.5 - 120.4	
115	In	580562.00	0.40	588896.69	98.6	59.5 - 120.4	
115	In	2386174.30	0.93	2448174.00	97.5	59.5 - 120.4	
159	Tb	2921436.00	0.96	3009423.80	97.1	59.5 - 120.4	
209	Bi	3277139.30	0.22	3342244.50	98.1	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\007CALS.D\007CALS.D#
Date Acquired: Feb 28 2017 12:03 pm
Operator:
Sample Name: Level 5 Std
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:01 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	910376.88	A	26420.00	2.90
9 Be	609117.38	P	10660.00	1.75
11 B	45729.37	P	580.60	1.27
27 Al	13248910.00	A	199600.00	1.51
45 Sc	1573956.00	A	9907.00	0.63
45 Sc	268207.69	P	4803.00	1.79
45 Sc	3609098.00	A	44500.00	1.23
51 V	685401.31	P	8262.00	1.21
52 Cr	740533.88	P	3866.00	0.52
55 Mn	4223291.00	A	41570.00	0.98
56 Fe	8768617.00	A	58590.00	0.67
59 Co	3613575.00	A	34310.00	0.95
60 Ni	735547.19	P	861.90	0.12
63 Cu	2015027.00	A	22160.00	1.10
66 Zn	2515257.00	A	19160.00	0.76
72 Ge	480068.31	P	4972.00	1.04
72 Ge	138055.09	P	1874.00	1.36
72 Ge	787714.88	P	10500.00	1.33
74 Ge	688820.00	P	3603.00	0.52
74 Ge	203317.41	P	414.60	0.20
74 Ge	1110967.00	A	13130.00	1.18
75 As	110205.40	P	1661.00	1.51
78 Se	128557.70	P	553.20	0.43
98 Mo	1415640.00	A	11650.00	0.82
99		P		
106 Cd		P		
107 Ag	567745.88	P	1023.00	0.18
108 Cd		P		
111 Cd	423549.31	P	674.10	0.16
115 In	2105416.00	A	11390.00	0.54
115 In	567667.31	P	3341.00	0.59
115 In	2401591.00	A	15860.00	0.66
118 Sn	1260461.00	A	8759.00	0.69
121 Sb	201946.91	P	1151.00	0.57
125 Te	73131.97	P	365.20	0.50
133 Cs	5535911.00	A	35580.00	0.64
137 Ba	1788576.00	A	9127.00	0.51
159 Tb	2940129.00	A	19080.00	0.65
205 Tl	3150336.00	A	16150.00	0.51
206 (Pb)		A		
207 (Pb)		A		
208 Pb	11146130.00	A	80570.00	0.72
209 Bi	3369313.00	A	25360.00	0.75
232 Th	4602308.00	A	34440.00	0.75
238 U	4338350.00	A	22800.00	0.53

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	910376.88	2.90	932694.25	97.6	59.5 - 120.4	
45 Sc	1573956.00	0.63	1647256.50	95.6	59.5 - 120.4	
45 Sc	268207.66	1.79	275256.59	97.4	59.5 - 120.4	
45 Sc	3609097.80	1.23	3711305.00	97.2	59.5 - 120.4	
72 Ge	480068.28	1.04	511494.31	93.9	59.5 - 120.4	
72 Ge	138055.16	1.36	141909.08	97.3	59.5 - 120.4	
72 Ge	787714.88	1.33	821753.81	95.9	59.5 - 120.4	
74 Ge	688820.06	0.52	725522.94	94.9	59.5 - 120.4	
74 Ge	203317.41	0.20	208110.73	97.7	59.5 - 120.4	
74 Ge	1110966.80	1.18	1122658.10	99.0	59.5 - 120.4	
115 In	2105416.50	0.54	2229970.80	94.4	59.5 - 120.4	
115 In	567667.31	0.59	588896.69	96.4	59.5 - 120.4	
115 In	2401591.30	0.66	2448174.00	98.1	59.5 - 120.4	
159 Tb	2940128.80	0.65	3009423.80	97.7	59.5 - 120.4	
209 Bi	3369313.50	0.75	3342244.50	100.8	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Initial Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\008_QCS.D\008_QCS.D#
Date Acquired: Feb 28 2017 12:06 pm
Operator:
Sample Name: ICV
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:04 pm
Sample Type: QCS
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	48.720	2.13	50.00	97.4	89 - 110	
11 B	6	3	20.560	2.44	20.00	102.8	89 - 110	
27 Al	72	3	104.700	1.43	100.00	104.7	89 - 110	
51 V	45	2	49.930	0.84	50.00	99.9	89 - 110	
52 Cr	45	2	51.180	0.22	50.00	102.4	89 - 110	
55 Mn	72	3	51.540	1.44	50.00	103.1	89 - 110	
56 Fe	45	1	104.900	2.29	100.00	104.9	89 - 110	
59 Co	72	3	52.980	2.39	50.00	106.0	89 - 110	
60 Ni	45	2	52.560	0.78	50.00	105.1	89 - 110	
63 Cu	45	2	50.180	0.87	50.00	100.4	89 - 110	
66 Zn	72	3	45.200	1.59	50.00	90.4	89 - 110	
75 As	45	2	51.540	0.57	50.00	103.1	89 - 110	
78 Se	45	1	53.580	2.01	50.00	107.2	89 - 110	
98 Mo	115	3	19.180	0.54	20.00	95.9	89 - 110	
107 Ag	115	3	18.910	1.01	20.00	94.6	89 - 110	
111 Cd	115	3	50.720	1.61	50.00	101.4	89 - 110	
118 Sn	115	3	43.660	0.84	50.00	87.3	89 - 110	Fail
121 Sb	115	3	21.310	0.74	20.00	106.6	89 - 110	
125 Te	115	3	52.500	1.15	50.00	105.0	89 - 110	
133 Cs	115	3	52.710	0.11	50.00	105.4	89 - 110	
137 Ba	115	3	49.310	0.80	50.00	98.6	89 - 110	
205 Tl	209	3	53.870	0.61	50.00	107.7	89 - 110	
208 Pb	209	3	51.540	0.76	50.00	103.1	89 - 110	
232 Th	209	3	52.800	0.36	50.00	105.6	89 - 110	
238 U	209	3	54.230	0.15	50.00	108.5	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	916489	3.01	932694	98.3	60 - 120	
45 Sc	1	1613490	1.45	1647257	98.0	60 - 120	
45 Sc	2	274042	0.76	275257	99.6	60 - 120	
45 Sc	3	3673705	1.29	3711305	99.0	60 - 120	
72 Ge	1	490337	0.54	511494	95.9	60 - 120	
72 Ge	2	141078	0.41	141909	99.4	60 - 120	
72 Ge	3	799377	1.32	821754	97.3	60 - 120	
74 Ge	1	699242	1.00	725523	96.4	60 - 120	
74 Ge	2	206957	1.20	208111	99.4	60 - 120	
74 Ge	3	1113688	1.28	1122658	99.2	60 - 120	
115 In	1	2123897	1.38	2229971	95.2	60 - 120	
115 In	2	576901	0.31	588897	98.0	60 - 120	
115 In	3	2414641	0.83	2448174	98.6	60 - 120	
159 Tb	3	2983744	1.30	3009424	99.1	60 - 120	
209 Bi	3	3327772	1.04	3342245	99.6	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

1 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\009_CCB.D\009_CCB.D#
Date Acquired: Feb 28 2017 12:09 pm
Operator:
Sample Name: ICB
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:04 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.036 ppb	37.75	0.150	
11 B	6	3	-0.360 ppb	15.09	1.500	
27 Al	72	3	0.256 ppb	37.84	3.000	
51 V	45	2	-0.263 ppb	32.14	0.600	
52 Cr	45	2	0.040 ppb	2.24	1.500	
55 Mn	72	3	0.051 ppb	38.75	1.500	
56 Fe	45	1	0.049 ppb	88.94	12.000	
59 Co	72	3	0.020 ppb	7.45	0.150	
60 Ni	45	2	0.050 ppb	32.52	1.800	
63 Cu	45	2	0.045 ppb	84.25	1.500	
66 Zn	72	3	0.061 ppb	243.07	6.000	
75 As	45	2	0.061 ppb	52.37	0.600	
78 Se	45	1	0.085 ppb	17.29	0.300	
98 Mo	115	3	0.029 ppb	24.22	1.500	
107 Ag	115	3	0.007 ppb	9.10	0.150	
111 Cd	115	3	0.022 ppb	105.00	0.300	
118 Sn	115	3	0.132 ppb	10.57	0.300	
121 Sb	115	3	0.260 ppb	11.41	1.200	
125 Te	115	3	0.009 ppb	251.70	3.000	
133 Cs	115	3	0.030 ppb	10.21	0.600	
137 Ba	115	3	0.029 ppb	5.80	1.500	
205 Tl	209	3	0.030 ppb	7.62	0.300	
208 Pb	209	3	0.059 ppb	6.28	0.300	
232 Th	209	3	0.286 ppb	2.00	3.000	
238 U	209	3	0.024 ppb	12.11	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	913449	0.76	932694	97.9	60 - 120	
45 Sc	1	1606175	1.49	1647257	97.5	60 - 120	
45 Sc	2	269527	0.48	275257	97.9	60 - 120	
45 Sc	3	3601957	1.40	3711305	97.1	60 - 120	
72 Ge	1	494738	0.25	511494	96.7	60 - 120	
72 Ge	2	139725	0.55	141909	98.5	60 - 120	
72 Ge	3	800716	0.54	821754	97.4	60 - 120	
74 Ge	1	699068	0.67	725523	96.4	60 - 120	
74 Ge	2	205004	1.15	208111	98.5	60 - 120	
74 Ge	3	1101832	0.50	1122658	98.1	60 - 120	
115 In	1	2117611	1.17	2229971	95.0	60 - 120	
115 In	2	573902	0.45	588897	97.5	60 - 120	
115 In	3	2391296	1.59	2448174	97.7	60 - 120	
159 Tb	3	2961513	1.02	3009424	98.4	60 - 120	
209 Bi	3	3301852	1.35	3342245	98.8	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\010_CCB.D\010_CCB.D#
Date Acquired: Feb 28 2017 12:12 pm
Operator:
Sample Name: ICSA
Misc Info:
Vial Number: 4510
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:04 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.151 ppb	31.49	0.150	Fail
11 B	6	3	1.352 ppb	9.45	1.500	
27 Al	72	3	48070.000 ppb	1.37	3.000	Fail
51 V	45	2	-0.470 ppb	6.81	0.600	
52 Cr	45	2	0.373 ppb	5.98	1.500	
55 Mn	72	3	0.771 ppb	1.85	1.500	
56 Fe	45	1	49540.000 ppb	2.19	12.000	Fail
59 Co	72	3	0.310 ppb	1.07	0.150	Fail
60 Ni	45	2	0.402 ppb	7.92	1.800	
63 Cu	45	2	-0.408 ppb	7.70	1.500	
66 Zn	72	3	-5.083 ppb	2.63	6.000	
75 As	45	2	0.190 ppb	18.20	0.600	
78 Se	45	1	0.205 ppb	16.28	0.300	
98 Mo	115	3	997.100 ppb	0.74	1.500	Fail
107 Ag	115	3	0.074 ppb	3.61	0.150	
111 Cd	115	3	0.143 ppb	52.99	0.300	
118 Sn	115	3	0.210 ppb	10.67	0.300	
121 Sb	115	3	0.295 ppb	1.96	1.200	
125 Te	115	3	0.091 ppb	36.20	3.000	
133 Cs	115	3	0.170 ppb	1.05	0.600	
137 Ba	115	3	0.433 ppb	3.51	1.500	
205 Tl	209	3	0.155 ppb	2.15	0.300	
208 Pb	209	3	0.220 ppb	3.77	0.300	
232 Th	209	3	0.441 ppb	1.57	3.000	
238 U	209	3	0.134 ppb	4.93	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	808287	2.37	932694	86.7	60 - 120	
45 Sc	1	1468982	2.20	1647257	89.2	60 - 120	
45 Sc	2	252684	1.04	275257	91.8	60 - 120	
45 Sc	3	3314838	0.74	3711305	89.3	60 - 120	
72 Ge	1	449496	1.70	511494	87.9	60 - 120	
72 Ge	2	130590	0.93	141909	92.0	60 - 120	
72 Ge	3	737696	0.06	821754	89.8	60 - 120	
74 Ge	1	639805	2.12	725523	88.2	60 - 120	
74 Ge	2	189346	0.58	208111	91.0	60 - 120	
74 Ge	3	999763	0.19	1122658	89.1	60 - 120	
115 In	1	1907398	2.51	2229971	85.5	60 - 120	
115 In	2	516053	1.63	588897	87.6	60 - 120	
115 In	3	2144022	0.15	2448174	87.6	60 - 120	
159 Tb	3	2753760	1.13	3009424	91.5	60 - 120	
209 Bi	3	2964544	0.08	3342245	88.7	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\011SMPL.D\011SMPL.D#
Date Acquired: Feb 28 2017 12:15 pm
Acq. Method: ACZ.M
Operator:
Sample Name: ICSAB
Misc Info:
Vial Number: 4511
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	18.850	18.850	ppb	2.23	200.00	
11 B	6	3	10.290	10.290	ppb	1.39	20.00	
27 Al	72	3	46,330.000	46330.000	ppb	0.71	1000.00	OCAL
51 V	45	2	19.930	19.930	ppb	0.42	200.00	
52 Cr	45	2	19.290	19.290	ppb	0.79	200.00	
55 Mn	72	3	19.300	19.300	ppb	1.35	200.00	
56 Fe	45	1	48,190.000	48190.000	ppb	1.54	1000.00	OCAL
59 Co	72	3	18.220	18.220	ppb	1.73	200.00	
60 Ni	45	2	18.750	18.750	ppb	2.31	500.00	
63 Cu	45	2	17.890	17.890	ppb	1.08	500.00	
66 Zn	72	3	12.620	12.620	ppb	2.22	1000.00	
75 As	45	2	20.170	20.170	ppb	3.39	200.00	
78 Se	45	1	20.230	20.230	ppb	2.65	500.00	
98 Mo	115	3	966.800	966.800	ppb	1.03	200.00	OCAL
107 Ag	115	3	8.468	8.468	ppb	1.54	50.00	
111 Cd	115	3	19.710	19.710	ppb	2.61	200.00	
118 Sn	115	3	20.290	20.290	ppb	1.48	200.00	
121 Sb	115	3	11.110	11.110	ppb	2.27	25.00	
125 Te	115	3	20.140	20.140	ppb	1.35	200.00	
133 Cs	115	3	20.030	20.030	ppb	1.15	200.00	
137 Ba	115	3	20.900	20.900	ppb	1.56	500.00	
205 Tl	209	3	20.130	20.130	ppb	1.85	200.00	
208 Pb	209	3	19.510	19.510	ppb	2.04	500.00	
232 Th	209	3	50.910	50.910	ppb	2.95	200.00	
238 U	209	3	20.980	20.980	ppb	1.93	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	780550	2.05	932694	83.7	59.5 - 120	
45 Sc	1	1418751	1.36	1647257	86.1	59.5 - 120	
45 Sc	2	240847	1.52	275257	87.5	59.5 - 120	
45 Sc	3	3207647	0.74	3711305	86.4	59.5 - 120	
72 Ge	1	429856	1.10	511494	84.0	59.5 - 120	
72 Ge	2	124658	1.15	141909	87.8	59.5 - 120	
72 Ge	3	706820	0.59	821754	86.0	59.5 - 120	
74 Ge	1	613729	1.02	725523	84.6	59.5 - 120	
74 Ge	2	181657	1.46	208111	87.3	59.5 - 120	
74 Ge	3	956172	0.24	1122658	85.2	59.5 - 120	
115 In	1	1845100	0.15	2229971	82.7	59.5 - 120	
115 In	2	501021	0.88	588897	85.1	59.5 - 120	
115 In	3	2090560	0.58	2448174	85.4	59.5 - 120	
159 Tb	3	2712364	0.84	3009424	90.1	59.5 - 120	
209 Bi	3	2953218	1.37	3342245	88.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\012_CCB.D\012_CCB.D#
Date Acquired: Feb 28 2017 12:18 pm
Operator:
Sample Name: wash
Misc Info:
Vial Number: 4512
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:04 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.007 ppb	67.39	0.150	
11 B	6	3	-0.898 ppb	18.33	1.500	
27 Al	72	3	20.040 ppb	8.41	3.000	Fail
51 V	45	2	-0.684 ppb	9.82	0.600	
52 Cr	45	2	-0.006 ppb	142.79	1.500	
55 Mn	72	3	-0.003 ppb	117.96	1.500	
56 Fe	45	1	32.470 ppb	5.78	12.000	Fail
59 Co	72	3	0.027 ppb	6.42	0.150	
60 Ni	45	2	-0.016 ppb	12.24	1.800	
63 Cu	45	2	-0.751 ppb	6.60	1.500	
66 Zn	72	3	-7.641 ppb	0.84	6.000	
75 As	45	2	-0.076 ppb	74.57	0.600	
78 Se	45	1	0.015 ppb	42.76	0.300	
98 Mo	115	3	0.582 ppb	2.45	1.500	
107 Ag	115	3	0.002 ppb	23.21	0.150	
111 Cd	115	3	-0.008 ppb	151.16	0.300	
118 Sn	115	3	-0.481 ppb	2.87	0.300	
121 Sb	115	3	0.023 ppb	31.29	1.200	
125 Te	115	3	0.020 ppb	281.81	3.000	
133 Cs	115	3	0.013 ppb	12.78	0.600	
137 Ba	115	3	-0.046 ppb	30.22	1.500	
205 Tl	209	3	0.026 ppb	12.88	0.300	
208 Pb	209	3	0.012 ppb	19.39	0.300	
232 Th	209	3	0.053 ppb	7.80	3.000	
238 U	209	3	0.008 ppb	13.33	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	839398	2.65	932694	90.0	60 - 120	
45 Sc	1	1452593	1.64	1647257	88.2	60 - 120	
45 Sc	2	241446	1.19	275257	87.7	60 - 120	
45 Sc	3	3294063	1.07	3711305	88.8	60 - 120	
72 Ge	1	451965	1.71	511494	88.4	60 - 120	
72 Ge	2	126734	1.62	141909	89.3	60 - 120	
72 Ge	3	738900	1.38	821754	89.9	60 - 120	
74 Ge	1	638765	1.17	725523	88.0	60 - 120	
74 Ge	2	185475	1.34	208111	89.1	60 - 120	
74 Ge	3	1021006	1.11	1122658	90.9	60 - 120	
115 In	1	1974702	1.44	2229971	88.6	60 - 120	
115 In	2	517883	1.31	588897	87.9	60 - 120	
115 In	3	2220070	0.69	2448174	90.7	60 - 120	
159 Tb	3	2750385	1.67	3009424	91.4	60 - 120	
209 Bi	3	3126426	1.00	3342245	93.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\013SMPL.D\013SMPL.D#
Date Acquired: Feb 28 2017 12:22 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG418244PBS
Misc Info:
Vial Number: 4401
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	-0.013	-0.013	ppb	149.18	200.00	
11 B	6	3	5.890	5.890	ppb	1.85	20.00	
27 Al	72	3	3.836	3.836	ppb	4.32	1000.00	
51 V	45	2	-0.108	-0.108	ppb	40.58	200.00	
52 Cr	45	2	0.314	0.314	ppb	3.38	200.00	
55 Mn	72	3	0.192	0.192	ppb	10.73	200.00	
56 Fe	45	1	7.207	7.207	ppb	4.91	1000.00	
59 Co	72	3	-0.001	-0.001	ppb	48.45	200.00	
60 Ni	45	2	0.082	0.082	ppb	4.18	500.00	
63 Cu	45	2	-0.506	-0.506	ppb	4.63	500.00	
66 Zn	72	3	-5.384	-5.384	ppb	0.59	1000.00	
75 As	45	2	0.040	0.040	ppb	129.98	200.00	
78 Se	45	1	0.012	0.012	ppb	41.31	500.00	
98 Mo	115	3	0.115	0.115	ppb	13.69	200.00	
107 Ag	115	3	-0.001	-0.001	ppb	379.87	50.00	
111 Cd	115	3	-0.012	-0.012	ppb	23.83	200.00	
118 Sn	115	3	-0.020	-0.020	ppb	86.10	200.00	
121 Sb	115	3	0.047	0.047	ppb	8.29	25.00	
125 Te	115	3	-0.049	-0.049	ppb	115.71	200.00	
133 Cs	115	3	0.007	0.007	ppb	105.56	200.00	
137 Ba	115	3	0.039	0.039	ppb	34.87	500.00	
205 Tl	209	3	-0.005	-0.005	ppb	34.73	200.00	
208 Pb	209	3	0.030	0.030	ppb	8.64	500.00	
232 Th	209	3	0.018	0.018	ppb	7.57	200.00	
238 U	209	3	0.000	0.000	ppb	620.95	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	910566	4.53	932694	97.6	59.5 - 120	
45 Sc	1	1439304	1.83	1647257	87.4	59.5 - 120	
45 Sc	2	244791	1.23	275257	88.9	59.5 - 120	
45 Sc	3	3616124	3.86	3711305	97.4	59.5 - 120	
72 Ge	1	450309	1.57	511494	88.0	59.5 - 120	
72 Ge	2	130354	1.31	141909	91.9	59.5 - 120	
72 Ge	3	800608	3.66	821754	97.4	59.5 - 120	
74 Ge	1	640480	1.14	725523	88.3	59.5 - 120	
74 Ge	2	189114	0.21	208111	90.9	59.5 - 120	
74 Ge	3	1103543	3.36	1122658	98.3	59.5 - 120	
115 In	1	1937538	1.64	2229971	86.9	59.5 - 120	
115 In	2	518411	0.32	588897	88.0	59.5 - 120	
115 In	3	2424287	3.48	2448174	99.0	59.5 - 120	
159 Tb	3	3018992	2.54	3009424	100.3	59.5 - 120	
209 Bi	3	3431532	2.61	3342245	102.7	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\014SMPL.D\014SMPL.D#
Date Acquired: Feb 28 2017 12:25 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG418244LFB2
Misc Info:
Vial Number: 4402
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	46.580	46.580	ppb	2.47	200.00	
11 B	6	3	14.900	14.900	ppb	4.06	20.00	
27 Al	72	3	48.980	48.980	ppb	1.33	1000.00	
51 V	45	2	48.190	48.190	ppb	2.21	200.00	
52 Cr	45	2	46.950	46.950	ppb	1.66	200.00	
55 Mn	72	3	47.900	47.900	ppb	0.70	200.00	
56 Fe	45	1	58.120	58.120	ppb	1.61	1000.00	
59 Co	72	3	45.720	45.720	ppb	0.79	200.00	
60 Ni	45	2	46.860	46.860	ppb	2.13	500.00	
63 Cu	45	2	47.240	47.240	ppb	2.48	500.00	
66 Zn	72	3	40.550	40.550	ppb	0.50	1000.00	
75 As	45	2	48.410	48.410	ppb	2.86	200.00	
78 Se	45	1	48.160	48.160	ppb	1.81	500.00	
98 Mo	115	3	45.800	45.800	ppb	1.56	200.00	
107 Ag	115	3	8.909	8.909	ppb	1.38	50.00	
111 Cd	115	3	47.120	47.120	ppb	1.55	200.00	
118 Sn	115	3	47.590	47.590	ppb	1.39	200.00	
121 Sb	115	3	11.000	11.000	ppb	2.08	25.00	
125 Te	115	3	48.710	48.710	ppb	3.10	200.00	
133 Cs	115	3	49.390	49.390	ppb	1.78	200.00	
137 Ba	115	3	48.790	48.790	ppb	2.04	500.00	
205 Tl	209	3	48.170	48.170	ppb	0.55	200.00	
208 Pb	209	3	47.050	47.050	ppb	0.90	500.00	
232 Th	209	3	49.620	49.620	ppb	0.59	200.00	
238 U	209	3	51.030	51.030	ppb	0.56	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	897765	3.44	932694	96.3	59.5 - 120	
45 Sc	1	1535500	1.86	1647257	93.2	59.5 - 120	
45 Sc	2	265911	2.60	275257	96.6	59.5 - 120	
45 Sc	3	3530853	0.81	3711305	95.1	59.5 - 120	
72 Ge	1	472009	2.14	511494	92.3	59.5 - 120	
72 Ge	2	136125	1.07	141909	95.9	59.5 - 120	
72 Ge	3	786393	0.48	821754	95.7	59.5 - 120	
74 Ge	1	669862	0.48	725523	92.3	59.5 - 120	
74 Ge	2	200944	2.89	208111	96.6	59.5 - 120	
74 Ge	3	1087878	0.48	1122658	96.9	59.5 - 120	
115 In	1	2069983	1.96	2229971	92.8	59.5 - 120	
115 In	2	566250	1.83	588897	96.2	59.5 - 120	
115 In	3	2397921	0.43	2448174	97.9	59.5 - 120	
159 Tb	3	2992373	1.48	3009424	99.4	59.5 - 120	
209 Bi	3	3419813	0.95	3342245	102.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\015SMPL.D\015SMPL.D#
Date Acquired: Feb 28 2017 12:28 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35178-01
Misc Info:
Vial Number: 4403
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.018	0.018	ppb	91.76	200.00	
11 B	6	3	14.960	14.960	ppb	2.19	20.00	
27 Al	72	3	2.031	2.031	ppb	3.27	1000.00	
51 V	45	2	-0.447	-0.447	ppb	12.91	200.00	
52 Cr	45	2	0.119	0.119	ppb	6.25	200.00	
55 Mn	72	3	52.040	52.040	ppb	0.65	200.00	
56 Fe	45	1	1.493	1.493	ppb	3.94	1000.00	
59 Co	72	3	0.108	0.108	ppb	1.14	200.00	
60 Ni	45	2	0.163	0.163	ppb	13.33	500.00	
63 Cu	45	2	0.438	0.438	ppb	2.37	500.00	
66 Zn	72	3	-3.500	-3.500	ppb	3.16	1000.00	
75 As	45	2	1.270	1.270	ppb	3.81	200.00	
78 Se	45	1	4.564	4.564	ppb	1.17	500.00	
98 Mo	115	3	5.315	5.315	ppb	1.67	200.00	
107 Ag	115	3	0.017	0.017	ppb	9.34	50.00	
111 Cd	115	3	0.049	0.049	ppb	50.50	200.00	
118 Sn	115	3	-0.454	-0.454	ppb	1.06	200.00	
121 Sb	115	3	10.950	10.950	ppb	0.78	25.00	
125 Te	115	3	-0.014	-0.014	ppb	189.03	200.00	
133 Cs	115	3	1.811	1.811	ppb	0.57	200.00	
137 Ba	115	3	2.955	2.955	ppb	1.40	500.00	
205 Tl	209	3	0.067	0.067	ppb	7.31	200.00	
208 Pb	209	3	30.830	30.830	ppb	1.22	500.00	
232 Th	209	3	0.158	0.158	ppb	1.50	200.00	
238 U	209	3	0.083	0.083	ppb	1.20	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	927018	2.20	932694	99.4	59.5 - 120	
45 Sc	1	1554806	0.75	1647257	94.4	59.5 - 120	
45 Sc	2	274235	0.44	275257	99.6	59.5 - 120	
45 Sc	3	3752231	1.26	3711305	101.1	59.5 - 120	
72 Ge	1	488217	0.64	511494	95.4	59.5 - 120	
72 Ge	2	144232	2.16	141909	101.6	59.5 - 120	
72 Ge	3	838019	0.48	821754	102.0	59.5 - 120	
74 Ge	1	690859	0.82	725523	95.2	59.5 - 120	
74 Ge	2	210755	0.56	208111	101.3	59.5 - 120	
74 Ge	3	1148696	0.38	1122658	102.3	59.5 - 120	
115 In	1	2122220	1.13	2229971	95.2	59.5 - 120	
115 In	2	590347	0.88	588897	100.2	59.5 - 120	
115 In	3	2548793	1.08	2448174	104.1	59.5 - 120	
159 Tb	3	3159704	1.23	3009424	105.0	59.5 - 120	
209 Bi	3	3590698	0.70	3342245	107.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\016SMPL.D\016SMPL.D#
Date Acquired: Feb 28 2017 12:31 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35465-01
Misc Info:
Vial Number: 4404
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.006	0.006	ppb	141.36	200.00	
11 B	6	3	7,704.000	7704.000	ppb	1.64	20.00	OCAL
27 Al	72	3	18,040.000	18040.000	ppb	1.51	1000.00	OCAL
51 V	45	2	50.580	50.580	ppb	2.24	200.00	
52 Cr	45	2	113.600	113.600	ppb	2.60	200.00	
55 Mn	72	3	0.511	0.511	ppb	6.07	200.00	
56 Fe	45	1	9.115	9.115	ppb	1.73	1000.00	
59 Co	72	3	0.258	0.258	ppb	1.37	200.00	
60 Ni	45	2	0.054	0.054	ppb	42.61	500.00	
63 Cu	45	2	-0.570	-0.570	ppb	6.92	500.00	
66 Zn	72	3	-4.350	-4.350	ppb	0.86	1000.00	
75 As	45	2	5.852	5.852	ppb	1.48	200.00	
78 Se	45	1	141.400	141.400	ppb	0.84	500.00	
98 Mo	115	3	215.900	215.900	ppb	2.03	200.00	OCAL
107 Ag	115	3	-0.001	-0.001	ppb	223.58	50.00	
111 Cd	115	3	0.043	0.043	ppb	69.03	200.00	
118 Sn	115	3	-0.392	-0.392	ppb	3.36	200.00	
121 Sb	115	3	12.440	12.440	ppb	1.36	25.00	
125 Te	115	3	0.684	0.684	ppb	17.67	200.00	
133 Cs	115	3	1.531	1.531	ppb	2.05	200.00	
137 Ba	115	3	2,439.000	2439.000	ppb	1.42	500.00	OCAL
205 Tl	209	3	0.025	0.025	ppb	20.85	200.00	
208 Pb	209	3	0.274	0.274	ppb	1.71	500.00	
232 Th	209	3	0.061	0.061	ppb	3.06	200.00	
238 U	209	3	0.130	0.130	ppb	2.99	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	953451	0.97	932694	102.2	59.5 - 120	
45 Sc	1	1539586	0.66	1647257	93.5	59.5 - 120	
45 Sc	2	259566	3.29	275257	94.3	59.5 - 120	
45 Sc	3	3426283	0.50	3711305	92.3	59.5 - 120	
72 Ge	1	480052	0.22	511494	93.9	59.5 - 120	
72 Ge	2	135599	0.99	141909	95.6	59.5 - 120	
72 Ge	3	771747	0.99	821754	93.9	59.5 - 120	
74 Ge	1	676442	0.66	725523	93.2	59.5 - 120	
74 Ge	2	200646	1.12	208111	96.4	59.5 - 120	
74 Ge	3	1058537	1.53	1122658	94.3	59.5 - 120	
115 In	1	2059883	0.62	2229971	92.4	59.5 - 120	
115 In	2	550769	1.40	588897	93.5	59.5 - 120	
115 In	3	2311191	2.23	2448174	94.4	59.5 - 120	
159 Tb	3	2899564	2.70	3009424	96.3	59.5 - 120	
209 Bi	3	3201955	1.68	3342245	95.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\017SMPL.D\017SMPL.D#
Date Acquired: Feb 28 2017 12:35 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35520-01
Misc Info:
Vial Number: 4405
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.055	0.055	ppb	31.90	200.00	
11 B	6	3	93.350	93.350	ppb	8.47	20.00	OCAL
27 Al	72	3	1,621.000	1621.000	ppb	0.71	1000.00	OCAL
51 V	45	2	11.640	11.640	ppb	3.35	200.00	
52 Cr	45	2	9.018	9.018	ppb	2.90	200.00	
55 Mn	72	3	15.400	15.400	ppb	0.87	200.00	
56 Fe	45	1	1,230.000	1230.000	ppb	0.50	1000.00	OCAL
59 Co	72	3	0.203	0.203	ppb	3.80	200.00	
60 Ni	45	2	3.973	3.973	ppb	3.19	500.00	
63 Cu	45	2	0.934	0.934	ppb	6.66	500.00	
66 Zn	72	3	18.740	18.740	ppb	1.34	1000.00	
75 As	45	2	1.129	1.129	ppb	8.20	200.00	
78 Se	45	1	0.462	0.462	ppb	7.79	500.00	
98 Mo	115	3	1.155	1.155	ppb	3.51	200.00	
107 Ag	115	3	0.073	0.073	ppb	6.54	50.00	
111 Cd	115	3	0.350	0.350	ppb	7.66	200.00	
118 Sn	115	3	1.716	1.716	ppb	0.57	200.00	
121 Sb	115	3	0.179	0.179	ppb	3.55	25.00	
125 Te	115	3	-0.053	-0.053	ppb	31.09	200.00	
133 Cs	115	3	0.245	0.245	ppb	1.85	200.00	
137 Ba	115	3	9.751	9.751	ppb	2.40	500.00	
205 Tl	209	3	0.034	0.034	ppb	6.87	200.00	
208 Pb	209	3	0.570	0.570	ppb	1.15	500.00	
232 Th	209	3	0.324	0.324	ppb	0.91	200.00	
238 U	209	3	0.246	0.246	ppb	3.20	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	945049	3.29	932694	101.3	59.5 - 120	
45 Sc	1	1547838	0.33	1647257	94.0	59.5 - 120	
45 Sc	2	275594	2.56	275257	100.1	59.5 - 120	
45 Sc	3	3650585	2.06	3711305	98.4	59.5 - 120	
72 Ge	1	478725	0.42	511494	93.6	59.5 - 120	
72 Ge	2	145383	2.24	141909	102.4	59.5 - 120	
72 Ge	3	824274	1.32	821754	100.3	59.5 - 120	
74 Ge	1	684678	0.14	725523	94.4	59.5 - 120	
74 Ge	2	211651	1.41	208111	101.7	59.5 - 120	
74 Ge	3	1131214	1.53	1122658	100.8	59.5 - 120	
115 In	1	2090598	0.67	2229971	93.7	59.5 - 120	
115 In	2	589903	1.93	588897	100.2	59.5 - 120	
115 In	3	2487487	1.86	2448174	101.6	59.5 - 120	
159 Tb	3	3132589	1.45	3009424	104.1	59.5 - 120	
209 Bi	3	3612185	1.35	3342245	108.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\018SMPL.D\018SMPL.D#
Date Acquired: Feb 28 2017 12:38 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35520-01DUP
Misc Info:
Vial Number: 4406
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.091	0.091	ppb	9.19	200.00	
11 B	6	3	46.280	46.280	ppb	1.24	20.00	OCAL
27 Al	72	3	2,574.000	2574.000	ppb	3.04	1000.00	OCAL
51 V	45	2	14.770	14.770	ppb	1.37	200.00	
52 Cr	45	2	12.620	12.620	ppb	1.47	200.00	
55 Mn	72	3	32.170	32.170	ppb	1.57	200.00	
56 Fe	45	1	1,966.000	1966.000	ppb	1.20	1000.00	OCAL
59 Co	72	3	0.428	0.428	ppb	2.87	200.00	
60 Ni	45	2	5.720	5.720	ppb	1.23	500.00	
63 Cu	45	2	1.658	1.658	ppb	1.60	500.00	
66 Zn	72	3	29.550	29.550	ppb	1.90	1000.00	
75 As	45	2	1.467	1.467	ppb	6.40	200.00	
78 Se	45	1	0.352	0.352	ppb	2.49	500.00	
98 Mo	115	3	1.068	1.068	ppb	2.90	200.00	
107 Ag	115	3	0.084	0.084	ppb	16.69	50.00	
111 Cd	115	3	0.564	0.564	ppb	2.98	200.00	
118 Sn	115	3	-0.349	-0.349	ppb	2.13	200.00	
121 Sb	115	3	0.171	0.171	ppb	0.59	25.00	
125 Te	115	3	-0.022	-0.022	ppb	86.24	200.00	
133 Cs	115	3	0.372	0.372	ppb	3.23	200.00	
137 Ba	115	3	14.400	14.400	ppb	3.22	500.00	
205 Tl	209	3	0.057	0.057	ppb	7.59	200.00	
208 Pb	209	3	0.930	0.930	ppb	1.68	500.00	
232 Th	209	3	0.510	0.510	ppb	3.62	200.00	
238 U	209	3	0.382	0.382	ppb	2.01	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	947833	1.59	932694	101.6	59.5 - 120	
45 Sc	1	1681525	0.92	1647257	102.1	59.5 - 120	
45 Sc	2	290011	3.31	275257	105.4	59.5 - 120	
45 Sc	3	3793205	1.83	3711305	102.2	59.5 - 120	
72 Ge	1	513597	0.59	511494	100.4	59.5 - 120	
72 Ge	2	149586	1.50	141909	105.4	59.5 - 120	
72 Ge	3	836097	2.48	821754	101.7	59.5 - 120	
74 Ge	1	729113	0.40	725523	100.5	59.5 - 120	
74 Ge	2	217959	1.88	208111	104.7	59.5 - 120	
74 Ge	3	1142907	2.00	1122658	101.8	59.5 - 120	
115 In	1	2272071	1.18	2229971	101.9	59.5 - 120	
115 In	2	623381	1.97	588897	105.9	59.5 - 120	
115 In	3	2562807	4.30	2448174	104.7	59.5 - 120	
159 Tb	3	3217598	3.00	3009424	106.9	59.5 - 120	
209 Bi	3	3693556	3.40	3342245	110.5	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\019SMPL.D\019SMPL.D#
Date Acquired: Feb 28 2017 12:41 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35520-01MS
Misc Info:
Vial Number: 4407
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	48.540	48.540	ppb	1.01	200.00	
11 B	6	3	40.560	40.560	ppb	2.06	20.00	OCAL
27 Al	72	3	1,870.000	1870.000	ppb	1.06	1000.00	OCAL
51 V	45	2	61.790	61.790	ppb	0.90	200.00	
52 Cr	45	2	56.510	56.510	ppb	0.66	200.00	
55 Mn	72	3	67.020	67.020	ppb	0.57	200.00	
56 Fe	45	1	1,464.000	1464.000	ppb	1.13	1000.00	OCAL
59 Co	72	3	46.540	46.540	ppb	0.88	200.00	
60 Ni	45	2	52.110	52.110	ppb	0.80	500.00	
63 Cu	45	2	48.730	48.730	ppb	1.22	500.00	
66 Zn	72	3	68.530	68.530	ppb	1.11	1000.00	
75 As	45	2	50.300	50.300	ppb	0.45	200.00	
78 Se	45	1	51.370	51.370	ppb	0.83	500.00	
98 Mo	115	3	47.930	47.930	ppb	1.23	200.00	
107 Ag	115	3	9.146	9.146	ppb	1.29	50.00	
111 Cd	115	3	49.730	49.730	ppb	1.09	200.00	
118 Sn	115	3	47.860	47.860	ppb	1.55	200.00	
121 Sb	115	3	11.240	11.240	ppb	1.34	25.00	
125 Te	115	3	52.340	52.340	ppb	1.24	200.00	
133 Cs	115	3	51.160	51.160	ppb	0.94	200.00	
137 Ba	115	3	60.840	60.840	ppb	0.96	500.00	
205 Tl	209	3	49.550	49.550	ppb	0.87	200.00	
208 Pb	209	3	48.720	48.720	ppb	0.96	500.00	
232 Th	209	3	51.100	51.100	ppb	1.23	200.00	
238 U	209	3	52.710	52.710	ppb	0.86	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	922363	2.33	932694	98.9	59.5 - 120	
45 Sc	1	1529113	0.93	1647257	92.8	59.5 - 120	
45 Sc	2	272130	1.04	275257	98.9	59.5 - 120	
45 Sc	3	3624393	1.52	3711305	97.7	59.5 - 120	
72 Ge	1	474590	0.39	511494	92.8	59.5 - 120	
72 Ge	2	141612	1.36	141909	99.8	59.5 - 120	
72 Ge	3	810944	0.54	821754	98.7	59.5 - 120	
74 Ge	1	675389	0.85	725523	93.1	59.5 - 120	
74 Ge	2	207296	1.00	208111	99.6	59.5 - 120	
74 Ge	3	1116112	0.60	1122658	99.4	59.5 - 120	
115 In	1	2087660	0.65	2229971	93.6	59.5 - 120	
115 In	2	586780	0.93	588897	99.6	59.5 - 120	
115 In	3	2461886	0.60	2448174	100.6	59.5 - 120	
159 Tb	3	3100105	0.98	3009424	103.0	59.5 - 120	
209 Bi	3	3603023	0.23	3342245	107.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\020SMPL.D\020SMPL.D#
Date Acquired: Feb 28 2017 12:44 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35520-01MSD
Misc Info:
Vial Number: 4408
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	47.350	47.350	ppb	1.15	200.00	
11 B	6	3	31.790	31.790	ppb	2.00	20.00	OCAL
27 Al	72	3	1,804.000	1804.000	ppb	0.05	1000.00	OCAL
51 V	45	2	62.280	62.280	ppb	0.38	200.00	
52 Cr	45	2	56.910	56.910	ppb	0.47	200.00	
55 Mn	72	3	66.030	66.030	ppb	0.60	200.00	
56 Fe	45	1	1,407.000	1407.000	ppb	1.12	1000.00	OCAL
59 Co	72	3	45.410	45.410	ppb	1.37	200.00	
60 Ni	45	2	52.440	52.440	ppb	0.35	500.00	
63 Cu	45	2	49.630	49.630	ppb	1.09	500.00	
66 Zn	72	3	66.190	66.190	ppb	1.75	1000.00	
75 As	45	2	51.700	51.700	ppb	0.37	200.00	
78 Se	45	1	49.900	49.900	ppb	1.34	500.00	
98 Mo	115	3	45.670	45.670	ppb	1.83	200.00	
107 Ag	115	3	8.802	8.802	ppb	2.53	50.00	
111 Cd	115	3	47.480	47.480	ppb	2.09	200.00	
118 Sn	115	3	45.750	45.750	ppb	2.48	200.00	
121 Sb	115	3	10.710	10.710	ppb	2.10	25.00	
125 Te	115	3	49.030	49.030	ppb	1.01	200.00	
133 Cs	115	3	48.820	48.820	ppb	1.93	200.00	
137 Ba	115	3	57.930	57.930	ppb	1.64	500.00	
205 Tl	209	3	48.080	48.080	ppb	1.96	200.00	
208 Pb	209	3	47.400	47.400	ppb	2.34	500.00	
232 Th	209	3	50.180	50.180	ppb	3.09	200.00	
238 U	209	3	51.270	51.270	ppb	3.23	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	931887	2.55	932694	99.9	59.5 - 120	
45 Sc	1	1636522	0.96	1647257	99.3	59.5 - 120	
45 Sc	2	273408	0.72	275257	99.3	59.5 - 120	
45 Sc	3	3744566	2.19	3711305	100.9	59.5 - 120	
72 Ge	1	502321	0.30	511494	98.2	59.5 - 120	
72 Ge	2	142537	1.30	141909	100.4	59.5 - 120	
72 Ge	3	827302	1.37	821754	100.7	59.5 - 120	
74 Ge	1	715229	0.50	725523	98.6	59.5 - 120	
74 Ge	2	207186	0.64	208111	99.6	59.5 - 120	
74 Ge	3	1139822	1.36	1122658	101.5	59.5 - 120	
115 In	1	2240497	0.50	2229971	100.5	59.5 - 120	
115 In	2	583376	0.59	588897	99.1	59.5 - 120	
115 In	3	2565750	1.85	2448174	104.8	59.5 - 120	
159 Tb	3	3217098	1.60	3009424	106.9	59.5 - 120	
209 Bi	3	3685463	1.52	3342245	110.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\021_CCV.D\021_CCV.D#
Date Acquired: Feb 28 2017 12:47 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:04 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	94.400	1.48	100.00	94.4	89 - 110	
11 B	6	3	18.860	3.65	10.00	188.6	89 - 110	Fail
27 Al	72	3	462.200	2.48	500.00	92.4	89 - 110	
51 V	45	2	90.760	0.32	100.00	90.8	89 - 110	
52 Cr	45	2	89.880	0.22	100.00	89.9	89 - 110	
55 Mn	72	3	95.540	2.28	100.00	95.5	89 - 110	
56 Fe	45	1	526.400	9.23	500.00	105.3	89 - 110	
59 Co	72	3	94.910	1.48	100.00	94.9	89 - 110	
60 Ni	45	2	225.300	0.47	250.00	90.1	89 - 110	
63 Cu	45	2	222.700	0.59	250.00	89.1	89 - 110	Fail
66 Zn	72	3	473.200	1.70	500.00	94.6	89 - 110	
75 As	45	2	90.500	0.34	100.00	90.5	89 - 110	
78 Se	45	1	267.500	9.12	250.00	107.0	89 - 110	
98 Mo	115	3	91.800	2.16	100.00	91.8	89 - 110	
107 Ag	115	3	23.600	2.59	25.00	94.4	89 - 110	
111 Cd	115	3	94.550	2.39	100.00	94.6	89 - 110	
118 Sn	115	3	94.320	1.88	100.00	94.3	89 - 110	
121 Sb	115	3	12.050	1.80	12.50	96.4	89 - 110	
125 Te	115	3	97.730	2.31	100.00	97.7	89 - 110	
133 Cs	115	3	97.330	2.11	100.00	97.3	89 - 110	
137 Ba	115	3	238.900	1.75	250.00	95.6	89 - 110	
205 Tl	209	3	97.770	1.59	100.00	97.8	89 - 110	
208 Pb	209	3	240.900	1.50	250.00	96.4	89 - 110	
232 Th	209	3	97.770	1.45	100.00	97.8	89 - 110	
238 U	209	3	98.930	1.78	100.00	98.9	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	894740	1.84	932694	95.9	60 - 120	
45 Sc	1	1452606	9.49	1647257	88.2	60 - 120	
45 Sc	2	276457	0.81	275257	100.4	60 - 120	
45 Sc	3	3578848	0.28	3711305	96.4	60 - 120	
72 Ge	1	444926	12.40	511494	87.0	60 - 120	
72 Ge	2	142202	0.85	141909	100.2	60 - 120	
72 Ge	3	791931	1.05	821754	96.4	60 - 120	
74 Ge	1	635753	12.42	725523	87.6	60 - 120	
74 Ge	2	208652	0.60	208111	100.3	60 - 120	
74 Ge	3	1112113	0.87	1122658	99.1	60 - 120	
115 In	1	1969211	10.57	2229971	88.3	60 - 120	
115 In	2	594032	0.49	588897	100.9	60 - 120	
115 In	3	2447755	1.84	2448174	100.0	60 - 120	
159 Tb	3	3072235	2.33	3009424	102.1	60 - 120	
209 Bi	3	3530067	1.20	3342245	105.6	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\022_CCB.D\022_CCB.D#
Date Acquired: Feb 28 2017 12:50 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:04 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.044 ppb	45.45	0.150	
11 B	6	3	6.613 ppb	1.62	1.500	Fail
27 Al	72	3	0.258 ppb	5.07	3.000	
51 V	45	2	-0.205 ppb	2.25	0.600	
52 Cr	45	2	0.043 ppb	23.42	1.500	
55 Mn	72	3	-0.101 ppb	8.27	1.500	
56 Fe	45	1	-0.210 ppb	15.19	12.000	
59 Co	72	3	0.017 ppb	39.69	0.150	
60 Ni	45	2	0.103 ppb	27.80	1.800	
63 Cu	45	2	0.074 ppb	48.39	1.500	
66 Zn	72	3	-0.102 ppb	100.20	6.000	
75 As	45	2	0.064 ppb	19.64	0.600	
78 Se	45	1	0.204 ppb	6.67	0.300	
98 Mo	115	3	0.058 ppb	8.38	1.500	
107 Ag	115	3	0.009 ppb	8.59	0.150	
111 Cd	115	3	0.024 ppb	104.20	0.300	
118 Sn	115	3	0.184 ppb	9.95	0.300	
121 Sb	115	3	0.291 ppb	6.09	1.200	
125 Te	115	3	0.041 ppb	155.53	3.000	
133 Cs	115	3	0.046 ppb	11.07	0.600	
137 Ba	115	3	0.074 ppb	9.54	1.500	
205 Tl	209	3	0.043 ppb	15.71	0.300	
208 Pb	209	3	0.084 ppb	17.57	0.300	
232 Th	209	3	0.257 ppb	2.03	3.000	
238 U	209	3	0.032 ppb	21.95	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	911227	2.24	932694	97.7	60 - 120	
45 Sc	1	1607502	0.69	1647257	97.6	60 - 120	
45 Sc	2	266973	1.74	275257	97.0	60 - 120	
45 Sc	3	3654326	2.24	3711305	98.5	60 - 120	
72 Ge	1	500598	0.52	511494	97.9	60 - 120	
72 Ge	2	139908	1.03	141909	98.6	60 - 120	
72 Ge	3	820319	0.79	821754	99.8	60 - 120	
74 Ge	1	706572	0.69	725523	97.4	60 - 120	
74 Ge	2	206015	0.96	208111	99.0	60 - 120	
74 Ge	3	1127527	1.20	1122658	100.4	60 - 120	
115 In	1	2181584	1.44	2229971	97.8	60 - 120	
115 In	2	569602	0.53	588897	96.7	60 - 120	
115 In	3	2479278	1.79	2448174	101.3	60 - 120	
159 Tb	3	3109694	0.91	3009424	103.3	60 - 120	
209 Bi	3	3507003	0.98	3342245	104.9	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

1 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\023SMPL.D\023SMPL.D#
Date Acquired: Feb 28 2017 12:54 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35520-02
Misc Info:
Vial Number: 4409
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.004	0.004	ppb	63.78	200.00	
11 B	6	3	17.330	17.330	ppb	4.21	20.00	
27 Al	72	3	216.400	216.400	ppb	3.60	1000.00	
51 V	45	2	2.080	2.080	ppb	4.34	200.00	
52 Cr	45	2	1.208	1.208	ppb	9.56	200.00	
55 Mn	72	3	46.860	46.860	ppb	4.34	200.00	
56 Fe	45	1	179.100	179.100	ppb	0.99	1000.00	
59 Co	72	3	0.102	0.102	ppb	10.38	200.00	
60 Ni	45	2	1.861	1.861	ppb	7.26	500.00	
63 Cu	45	2	0.957	0.957	ppb	6.14	500.00	
66 Zn	72	3	-0.390	-0.390	ppb	129.10	1000.00	
75 As	45	2	0.582	0.582	ppb	6.61	200.00	
78 Se	45	1	0.315	0.315	ppb	2.37	500.00	
98 Mo	115	3	2.434	2.434	ppb	4.30	200.00	
107 Ag	115	3	0.014	0.014	ppb	8.32	50.00	
111 Cd	115	3	0.085	0.085	ppb	44.59	200.00	
118 Sn	115	3	-0.457	-0.457	ppb	0.87	200.00	
121 Sb	115	3	0.290	0.290	ppb	5.84	25.00	
125 Te	115	3	-0.032	-0.032	ppb	204.24	200.00	
133 Cs	115	3	0.063	0.063	ppb	10.84	200.00	
137 Ba	115	3	8.129	8.129	ppb	4.81	500.00	
205 Tl	209	3	0.007	0.007	ppb	41.31	200.00	
208 Pb	209	3	0.125	0.125	ppb	8.67	500.00	
232 Th	209	3	0.154	0.154	ppb	6.87	200.00	
238 U	209	3	0.347	0.347	ppb	6.26	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	859122	4.18	932694	92.1	59.5 - 120	
45 Sc	1	1519048	0.81	1647257	92.2	59.5 - 120	
45 Sc	2	255427	0.55	275257	92.8	59.5 - 120	
45 Sc	3	3473204	5.05	3711305	93.6	59.5 - 120	
72 Ge	1	470962	0.35	511494	92.1	59.5 - 120	
72 Ge	2	133235	1.68	141909	93.9	59.5 - 120	
72 Ge	3	780140	3.75	821754	94.9	59.5 - 120	
74 Ge	1	668324	0.21	725523	92.1	59.5 - 120	
74 Ge	2	195834	1.34	208111	94.1	59.5 - 120	
74 Ge	3	1070996	3.71	1122658	95.4	59.5 - 120	
115 In	1	2061671	0.42	2229971	92.5	59.5 - 120	
115 In	2	550138	0.37	588897	93.4	59.5 - 120	
115 In	3	2368539	3.88	2448174	96.7	59.5 - 120	
159 Tb	3	2943636	3.26	3009424	97.8	59.5 - 120	
209 Bi	3	3352534	3.61	3342245	100.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\024SMPL.D\024SMPL.D#
Date Acquired: Feb 28 2017 12:57 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35520-03
Misc Info:
Vial Number: 4410
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.122	0.122	ppb	16.60	200.00	
11 B	6	3	18.330	18.330	ppb	2.10	20.00	
27 Al	72	3	3,412.000	3412.000	ppb	0.85	1000.00	OCAL
51 V	45	2	12.950	12.950	ppb	3.23	200.00	
52 Cr	45	2	34.270	34.270	ppb	1.70	200.00	
55 Mn	72	3	43.480	43.480	ppb	1.05	200.00	
56 Fe	45	1	2,447.000	2447.000	ppb	2.48	1000.00	OCAL
59 Co	72	3	0.413	0.413	ppb	0.80	200.00	
60 Ni	45	2	18.920	18.920	ppb	3.70	500.00	
63 Cu	45	2	4.367	4.367	ppb	3.65	500.00	
66 Zn	72	3	84.300	84.300	ppb	1.73	1000.00	
75 As	45	2	2.742	2.742	ppb	2.72	200.00	
78 Se	45	1	1.001	1.001	ppb	5.93	500.00	
98 Mo	115	3	8.688	8.688	ppb	0.30	200.00	
107 Ag	115	3	0.030	0.030	ppb	9.16	50.00	
111 Cd	115	3	0.490	0.490	ppb	9.13	200.00	
118 Sn	115	3	-0.343	-0.343	ppb	0.88	200.00	
121 Sb	115	3	0.383	0.383	ppb	4.48	25.00	
125 Te	115	3	-0.019	-0.019	ppb	104.95	200.00	
133 Cs	115	3	0.787	0.787	ppb	2.10	200.00	
137 Ba	115	3	9.112	9.112	ppb	1.88	500.00	
205 Tl	209	3	0.123	0.123	ppb	4.18	200.00	
208 Pb	209	3	0.764	0.764	ppb	1.57	500.00	
232 Th	209	3	0.703	0.703	ppb	1.39	200.00	
238 U	209	3	1.112	1.112	ppb	2.25	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	911088	1.95	932694	97.7	59.5 - 120	
45 Sc	1	1500665	2.67	1647257	91.1	59.5 - 120	
45 Sc	2	268626	3.01	275257	97.6	59.5 - 120	
45 Sc	3	3593033	1.95	3711305	96.8	59.5 - 120	
72 Ge	1	468101	1.51	511494	91.5	59.5 - 120	
72 Ge	2	140207	2.42	141909	98.8	59.5 - 120	
72 Ge	3	801332	1.04	821754	97.5	59.5 - 120	
74 Ge	1	662536	1.51	725523	91.3	59.5 - 120	
74 Ge	2	205494	1.70	208111	98.7	59.5 - 120	
74 Ge	3	1100089	0.73	1122658	98.0	59.5 - 120	
115 In	1	2039864	2.13	2229971	91.5	59.5 - 120	
115 In	2	572700	3.00	588897	97.2	59.5 - 120	
115 In	3	2433037	0.80	2448174	99.4	59.5 - 120	
159 Tb	3	3065145	0.31	3009424	101.9	59.5 - 120	
209 Bi	3	3527904	0.73	3342245	105.6	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\025SMPL.D\025SMPL.D#
Date Acquired: Feb 28 2017 01:00 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35520-04
Misc Info:
Vial Number: 4411
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.002	0.002	ppb	767.14	200.00	
11 B	6	3	11.590	11.590	ppb	6.14	20.00	
27 Al	72	3	119.800	119.800	ppb	1.29	1000.00	
51 V	45	2	2.647	2.647	ppb	1.21	200.00	
52 Cr	45	2	0.769	0.769	ppb	0.04	200.00	
55 Mn	72	3	2.538	2.538	ppb	1.64	200.00	
56 Fe	45	1	107.400	107.400	ppb	2.04	1000.00	
59 Co	72	3	0.028	0.028	ppb	16.04	200.00	
60 Ni	45	2	0.184	0.184	ppb	33.88	500.00	
63 Cu	45	2	-0.414	-0.414	ppb	7.51	500.00	
66 Zn	72	3	-2.220	-2.220	ppb	2.28	1000.00	
75 As	45	2	1.175	1.175	ppb	13.96	200.00	
78 Se	45	1	0.266	0.266	ppb	4.16	500.00	
98 Mo	115	3	1.884	1.884	ppb	1.99	200.00	
107 Ag	115	3	-0.001	-0.001	ppb	185.11	50.00	
111 Cd	115	3	0.012	0.012	ppb	69.67	200.00	
118 Sn	115	3	-0.501	-0.501	ppb	2.32	200.00	
121 Sb	115	3	0.139	0.139	ppb	1.24	25.00	
125 Te	115	3	-0.039	-0.039	ppb	91.88	200.00	
133 Cs	115	3	0.031	0.031	ppb	3.75	200.00	
137 Ba	115	3	2.828	2.828	ppb	2.68	500.00	
205 Tl	209	3	-0.006	-0.006	ppb	40.17	200.00	
208 Pb	209	3	0.040	0.040	ppb	10.16	500.00	
232 Th	209	3	0.045	0.045	ppb	5.41	200.00	
238 U	209	3	0.454	0.454	ppb	3.01	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	876628	1.96	932694	94.0	59.5 - 120	
45 Sc	1	1584284	2.26	1647257	96.2	59.5 - 120	
45 Sc	2	263964	3.03	275257	95.9	59.5 - 120	
45 Sc	3	3554158	0.39	3711305	95.8	59.5 - 120	
72 Ge	1	487559	0.93	511494	95.3	59.5 - 120	
72 Ge	2	140798	2.56	141909	99.2	59.5 - 120	
72 Ge	3	791371	1.41	821754	96.3	59.5 - 120	
74 Ge	1	696006	1.17	725523	95.9	59.5 - 120	
74 Ge	2	204730	1.32	208111	98.4	59.5 - 120	
74 Ge	3	1089332	1.71	1122658	97.0	59.5 - 120	
115 In	1	2168560	1.07	2229971	97.2	59.5 - 120	
115 In	2	572388	2.04	588897	97.2	59.5 - 120	
115 In	3	2445153	1.44	2448174	99.9	59.5 - 120	
159 Tb	3	3073333	1.26	3009424	102.1	59.5 - 120	
209 Bi	3	3501640	0.76	3342245	104.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\026SMPL.D\026SMPL.D#
Date Acquired: Feb 28 2017 01:03 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35624-01
Misc Info:
Vial Number: 4412
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	-0.014	-0.014	ppb	48.92	200.00	
11 B	6	3	14.510	14.510	ppb	2.24	20.00	
27 Al	72	3	1,111.000	1111.000	ppb	1.14	1000.00	OCAL
51 V	45	2	-0.383	-0.383	ppb	4.07	200.00	
52 Cr	45	2	28.780	28.780	ppb	1.02	200.00	
55 Mn	72	3	0.978	0.978	ppb	1.77	200.00	
56 Fe	45	1	7.110	7.110	ppb	0.38	1000.00	
59 Co	72	3	0.341	0.341	ppb	0.84	200.00	
60 Ni	45	2	0.173	0.173	ppb	10.21	500.00	
63 Cu	45	2	0.567	0.567	ppb	7.97	500.00	
66 Zn	72	3	6.836	6.836	ppb	1.93	1000.00	
75 As	45	2	0.985	0.985	ppb	1.30	200.00	
78 Se	45	1	10.640	10.640	ppb	0.95	500.00	
98 Mo	115	3	24.010	24.010	ppb	1.00	200.00	
107 Ag	115	3	0.001	0.001	ppb	166.20	50.00	
111 Cd	115	3	0.003	0.003	ppb	432.56	200.00	
118 Sn	115	3	-0.517	-0.517	ppb	0.53	200.00	
121 Sb	115	3	5.912	5.912	ppb	0.82	25.00	
125 Te	115	3	0.294	0.294	ppb	6.87	200.00	
133 Cs	115	3	8.401	8.401	ppb	1.18	200.00	
137 Ba	115	3	37.870	37.870	ppb	1.09	500.00	
205 Tl	209	3	0.114	0.114	ppb	4.82	200.00	
208 Pb	209	3	194.400	194.400	ppb	0.68	500.00	
232 Th	209	3	0.015	0.015	ppb	5.55	200.00	
238 U	209	3	0.002	0.002	ppb	96.07	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	843491	3.61	932694	90.4	59.5 - 120	
45 Sc	1	1439166	1.30	1647257	87.4	59.5 - 120	
45 Sc	2	253308	1.51	275257	92.0	59.5 - 120	
45 Sc	3	3343494	1.66	3711305	90.1	59.5 - 120	
72 Ge	1	442458	1.33	511494	86.5	59.5 - 120	
72 Ge	2	131544	1.13	141909	92.7	59.5 - 120	
72 Ge	3	739710	1.41	821754	90.0	59.5 - 120	
74 Ge	1	627216	0.51	725523	86.5	59.5 - 120	
74 Ge	2	190859	1.28	208111	91.7	59.5 - 120	
74 Ge	3	1017021	1.93	1122658	90.6	59.5 - 120	
115 In	1	1946834	0.94	2229971	87.3	59.5 - 120	
115 In	2	540435	1.32	588897	91.8	59.5 - 120	
115 In	3	2283310	0.77	2448174	93.3	59.5 - 120	
159 Tb	3	2870972	1.90	3009424	95.4	59.5 - 120	
209 Bi	3	3224367	1.69	3342245	96.5	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

1 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\027SMPL.D\027SMPL.D#
Date Acquired: Feb 28 2017 01:07 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L35624-01SDL
Misc Info:
Vial Number: 4501
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Feb 28 2017 12:04 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.000	0.000	ppb	847.65	200.00	
11 B	6	3	4.016	4.016	ppb	3.19	20.00	
27 Al	72	3	229.800	229.800	ppb	0.55	1000.00	
51 V	45	2	-0.712	-0.712	ppb	5.73	200.00	
52 Cr	45	2	5.914	5.914	ppb	2.28	200.00	
55 Mn	72	3	0.063	0.063	ppb	7.53	200.00	
56 Fe	45	1	0.134	0.134	ppb	14.98	1000.00	
59 Co	72	3	0.075	0.075	ppb	3.18	200.00	
60 Ni	45	2	0.016	0.016	ppb	39.00	500.00	
63 Cu	45	2	-0.496	-0.496	ppb	0.23	500.00	
66 Zn	72	3	-5.353	-5.353	ppb	2.66	1000.00	
75 As	45	2	0.085	0.085	ppb	34.57	200.00	
78 Se	45	1	2.173	2.173	ppb	2.00	500.00	
98 Mo	115	3	4.999	4.999	ppb	1.39	200.00	
107 Ag	115	3	-0.003	-0.003	ppb	66.35	50.00	
111 Cd	115	3	-0.005	-0.005	ppb	257.86	200.00	
118 Sn	115	3	-0.538	-0.538	ppb	0.61	200.00	
121 Sb	115	3	1.210	1.210	ppb	1.99	25.00	
125 Te	115	3	0.020	0.020	ppb	272.02	200.00	
133 Cs	115	3	1.724	1.724	ppb	0.37	200.00	
137 Ba	115	3	7.672	7.672	ppb	1.69	500.00	
205 Tl	209	3	0.022	0.022	ppb	31.96	200.00	
208 Pb	209	3	39.420	39.420	ppb	0.94	500.00	
232 Th	209	3	0.007	0.007	ppb	16.05	200.00	
238 U	209	3	0.004	0.004	ppb	81.96	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	923775	2.29	932694	99.0	59.5 - 120	
45 Sc	1	1533714	1.62	1647257	93.1	59.5 - 120	
45 Sc	2	273182	2.19	275257	99.2	59.5 - 120	
45 Sc	3	3692349	0.34	3711305	99.5	59.5 - 120	
72 Ge	1	474385	1.73	511494	92.7	59.5 - 120	
72 Ge	2	142248	2.28	141909	100.2	59.5 - 120	
72 Ge	3	828691	0.40	821754	100.8	59.5 - 120	
74 Ge	1	674412	1.29	725523	93.0	59.5 - 120	
74 Ge	2	207041	1.70	208111	99.5	59.5 - 120	
74 Ge	3	1128402	1.03	1122658	100.5	59.5 - 120	
115 In	1	2071703	1.14	2229971	92.9	59.5 - 120	
115 In	2	577423	2.06	588897	98.1	59.5 - 120	
115 In	3	2519136	0.34	2448174	102.9	59.5 - 120	
159 Tb	3	3151338	0.92	3009424	104.7	59.5 - 120	
209 Bi	3	3563662	1.19	3342245	106.6	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\028_CCV.D\028_CCV.D#
Date Acquired: Feb 28 2017 01:10 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:04 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	94.560	1.95	100.00	94.6	89 - 110	
11 B	6	3	10.240	1.55	10.00	102.4	89 - 110	
27 Al	72	3	465.900	1.30	500.00	93.2	89 - 110	
51 V	45	2	95.110	0.67	100.00	95.1	89 - 110	
52 Cr	45	2	94.730	0.66	100.00	94.7	89 - 110	
55 Mn	72	3	96.150	1.47	100.00	96.2	89 - 110	
56 Fe	45	1	485.500	0.50	500.00	97.1	89 - 110	
59 Co	72	3	95.670	0.86	100.00	95.7	89 - 110	
60 Ni	45	2	236.600	1.21	250.00	94.6	89 - 110	
63 Cu	45	2	234.200	0.70	250.00	93.7	89 - 110	
66 Zn	72	3	478.300	1.67	500.00	95.7	89 - 110	
75 As	45	2	96.120	0.70	100.00	96.1	89 - 110	
78 Se	45	1	248.800	0.55	250.00	99.5	89 - 110	
98 Mo	115	3	91.850	2.81	100.00	91.9	89 - 110	
107 Ag	115	3	23.730	2.44	25.00	94.9	89 - 110	
111 Cd	115	3	95.450	1.61	100.00	95.5	89 - 110	
118 Sn	115	3	94.760	2.31	100.00	94.8	89 - 110	
121 Sb	115	3	12.150	2.14	12.50	97.2	89 - 110	
125 Te	115	3	98.260	2.52	100.00	98.3	89 - 110	
133 Cs	115	3	97.000	1.90	100.00	97.0	89 - 110	
137 Ba	115	3	241.200	1.97	250.00	96.5	89 - 110	
205 Tl	209	3	98.740	1.31	100.00	98.7	89 - 110	
208 Pb	209	3	242.300	1.81	250.00	96.9	89 - 110	
232 Th	209	3	99.170	1.67	100.00	99.2	89 - 110	
238 U	209	3	100.400	1.43	100.00	100.4	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	929984	2.23	932694	99.7	60 - 120	
45 Sc	1	1571735	1.79	1647257	95.4	60 - 120	
45 Sc	2	272511	1.40	275257	99.0	60 - 120	
45 Sc	3	3673571	0.87	3711305	99.0	60 - 120	
72 Ge	1	482580	2.30	511494	94.3	60 - 120	
72 Ge	2	140551	0.56	141909	99.0	60 - 120	
72 Ge	3	812919	0.67	821754	98.9	60 - 120	
74 Ge	1	692672	1.91	725523	95.5	60 - 120	
74 Ge	2	208548	1.43	208111	100.2	60 - 120	
74 Ge	3	1130036	0.89	1122658	100.7	60 - 120	
115 In	1	2134952	1.48	2229971	95.7	60 - 120	
115 In	2	582393	1.56	588897	98.9	60 - 120	
115 In	3	2526322	0.61	2448174	103.2	60 - 120	
159 Tb	3	3169145	0.38	3009424	105.3	60 - 120	
209 Bi	3	3641845	0.53	3342245	109.0	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg418596.b\029_CCB.D\029_CCB.D#
Date Acquired: Feb 28 2017 01:13 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Feb 28 2017 12:04 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.027 ppb	45.64	0.150	
11 B	6	3	-0.042 ppb	115.65	1.500	
27 Al	72	3	0.122 ppb	27.94	3.000	
51 V	45	2	-0.498 ppb	7.04	0.600	
52 Cr	45	2	0.027 ppb	35.15	1.500	
55 Mn	72	3	-0.147 ppb	9.27	1.500	
56 Fe	45	1	-0.371 ppb	16.92	12.000	
59 Co	72	3	0.019 ppb	36.97	0.150	
60 Ni	45	2	0.071 ppb	19.68	1.800	
63 Cu	45	2	0.052 ppb	48.65	1.500	
66 Zn	72	3	-0.070 ppb	246.48	6.000	
75 As	45	2	0.097 ppb	34.75	0.600	
78 Se	45	1	0.209 ppb	7.41	0.300	
98 Mo	115	3	0.045 ppb	4.97	1.500	
107 Ag	115	3	0.010 ppb	7.51	0.150	
111 Cd	115	3	0.018 ppb	51.42	0.300	
118 Sn	115	3	0.177 ppb	12.59	0.300	
121 Sb	115	3	0.288 ppb	5.24	1.200	
125 Te	115	3	0.064 ppb	141.81	3.000	
133 Cs	115	3	0.041 ppb	11.49	0.600	
137 Ba	115	3	0.074 ppb	23.01	1.500	
205 Tl	209	3	0.035 ppb	10.81	0.300	
208 Pb	209	3	0.085 ppb	5.95	0.300	
232 Th	209	3	0.243 ppb	5.97	3.000	
238 U	209	3	0.031 ppb	7.90	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	965862	0.79	932694	103.6	60 - 120	
45 Sc	1	1587412	1.10	1647257	96.4	60 - 120	
45 Sc	2	282243	2.96	275257	102.5	60 - 120	
45 Sc	3	3813236	0.98	3711305	102.7	60 - 120	
72 Ge	1	495859	1.93	511494	96.9	60 - 120	
72 Ge	2	149836	2.30	141909	105.6	60 - 120	
72 Ge	3	868602	0.26	821754	105.7	60 - 120	
74 Ge	1	701993	1.16	725523	96.8	60 - 120	
74 Ge	2	218486	1.00	208111	105.0	60 - 120	
74 Ge	3	1189899	0.32	1122658	106.0	60 - 120	
115 In	1	2164957	1.61	2229971	97.1	60 - 120	
115 In	2	608832	1.73	588897	103.4	60 - 120	
115 In	3	2616724	0.66	2448174	106.9	60 - 120	
159 Tb	3	3313388	0.74	3009424	110.1	60 - 120	
209 Bi	3	3781541	1.58	3342245	113.1	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg418596.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

MS Total Hot Plate

QC List Type: I-X-THP
QCListMatClass: LIQUID
Bench Sheet List: I-X-THP
QC Ref: NOQC
Group ID: IP-G-DIG-THP-MS-1312
Method Ref: M3010 ICP-MS
SOP Ref: SOPII021

WG418364

ACZ Laboratories, Inc

Instrument ID: METALSDIG
Analyst: enb
ACZ Dept: 30
Create Date: 02/23/2017 9:07
Start Date/Time: 02/23/2017 10:20
End Date/Time: 02/23/2017 14:50

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	AS MS 1312	BE MS 1312	CD MS 1312	PB MS 1312	SB MS 1312	SE MS 1312	TH MS 1312	TL MS 1312	U MS 1312	SCN Volume (mL)	Sample Volume (mL)	Final Volume (mL)	Comments
1	WG418244PBS	NONE	r		02/23/17 10:20	✓	✓	✓	✓	✓	✓	✓	✓	✓		50	50	
2	WG418244LFB2	MS170117-3	r		02/23/17 10:44	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.25	50	50	
3	L35178-01	HERMOSA TAILINGS	r		02/23/17 11:09	✓		✓	✓	✓	✓	✓	✓	✓		50	50	
4	L35465-01	CRAIG STATION FLY AS	r		02/23/17 11:33	✓	✓		✓	✓	✓		✓			50	50	
5	L35520-01	TP-6_7_9 (2-5)	r		02/23/17 11:58	✓		✓			✓					50	50	
6	L35520-01DUP	NONE	r		02/23/17 12:22	✓	✓	✓	✓	✓	✓	✓	✓	✓		50	50	
7	L35520-01MS	MS170117-3	r		02/23/17 12:47	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.25	50	50	
8	L35520-01MSD	MS170117-3	r		02/23/17 13:11	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.25	50	50	
9	L35520-02	SB-12GT (0-27)	r		02/23/17 13:36	✓		✓			✓					50	50	
10	L35520-03	SB-13AL (0-25)	r		02/23/17 14:00	✓		✓			✓					50	50	
11	L35520-04	SB-14AL (15-35)	r		02/23/17 14:25	✓		✓			✓					50	50	
12	L35624-01	TAILINGS PASTE SAMPL	r		02/23/17 14:50	✓	✓	✓	✓	✓	✓	✓	✓	✓		50	50	

Sample	Login Comments
L35178-01	ZIPLOCK -- RELOG OF L34285-01 || In the Inorganic cooelr.
L35465-01	BUCKET || In the Inorganic cooler.
L35520-01	ZIPLOCK -- RELOG OF L34445-01 || In the Inorganic cooler.
L35520-01MS	ICPMS Spike
L35520-01MSD	ICPMS Spike
L35520-02	ZIPLOCK -- RELOG OF L34674-05 || In the Inorganic cooler.
L35520-03	ZIPLOCK -- RELOG OF L34674-06 || In the Inorganic cooler.
L35520-04	ZIPLOCK -- RELOG OF L34674-08 || In the Inorganic cooler.
L35624-01	ZIPLOCK(2) || In the Inorganic cooler.
WG418244LFB2	ICPMS LFB

Report Comments: _____

Internal Comments _____

AREV: ENB 2/23/17
Initials, Date

SREV: 2.23.17
Initials, Date

ACZ Laboratories, Inc.

METALS PREP REVIEW CHECKLIST

AREV:	ENB
Date:	2/23/17
SREV:	[illegible]
Date:	2-23-17

Work Group:	418364
Sample Type:	THP-1312
Prep Date:	2/23/17
Analyst:	ENB

	N/A	Yes	No
1.) Are all dilutions correct in LIMS and documented on the bench sheet ?		✓	
2.) Is any sample prepared on dilution appropriately "D" qualified?	✓		
3.) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?	✓		
4.) Are all initial and final sample volumes correct in LIMS ?		✓	
5.) Is the correct SCN entered for each spike and control standard (LFB or LCSW) ?		✓	
6.) Are all SCN volumes correct in LIMS ?		✓	
7.) Are all errors properly corrected (i.e. single-line crossout, dated & initialed) ?		✓	
8.) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS ?		✓	

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Problem	Corrective action

Disposable Vessel Lot #*: 1610138

Nitric acid PCN: 52327

Hydrochloric acid PCN: 523916

Digest Temp: 92 °C ok

Comments:

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

MS Total Hot Plate

QC List Type: I-X-THP
QCListMatClass: LIQUID
Bench Sheet List: I-X-THP
QC Ref: NOQC
Group ID: IP-G-DIG-THP-MS-1312
Method Ref: M3010 ICP-MS
SOP Ref: SOPII021

WG418364

ACZ Laboratories, Inc

Instrument ID: METALSDIG
Analyst:
ACZ Dept: 30
Create Date: 02/23/2017 9:07
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	ASMS1312	BEMS1312	CDMS1312	PBMS1312	SBMS1312	SEMS1312	THMS1312	TLMS1312	UMS1312	SCN Volume (mL)	Sample Volume (mL)	Final Volume (mL)	Comments
1	WG418244PBS	NONE				✓	✓	✓	✓	✓	✓	✓	✓	✓				
2	WG418244LFB2	MS170117-3				✓	✓	✓	✓	✓	✓	✓	✓	✓				
3	L35178-01	HERMOSA TAILINGS				✓		✓	✓	✓	✓	✓	✓	✓				
4	L35465-01	CRAIG STATION FLY AS				✓	✓		✓	✓	✓		✓					
5	L35520-01	TP-6_7_9 (2-5)				✓		✓			✓							
6	L35520-01DUP	NONE				✓	✓	✓	✓	✓	✓	✓	✓	✓				
7	L35520-01MS	MS170117-3				✓	✓	✓	✓	✓	✓	✓	✓	✓				
8	L35520-01MSD	MS170117-3				✓	✓	✓	✓	✓	✓	✓	✓	✓				
9	L35520-02	SB-12GT (0-27)				✓		✓			✓							
10	L35520-03	SB-13AL (0-25)				✓		✓			✓							
11	L35520-04	SB-14AL (15-35)				✓		✓			✓							
12	L35624-01	TAILINGS PASTE SAMPL				✓	✓	✓	✓	✓	✓	✓	✓	✓				

Sample	Login Comments
L35178-01	ZIPLOCK -- RELOG OF L34285-01 || In the Inorganic cooelr.
L35465-01	BUCKET || In the Inorganic cooler.
L35520-01	ZIPLOCK -- RELOG OF L34445-01 || In the Inorganic cooler.
L35520-01MS	ICPMS Spike
L35520-01MSD	ICPMS Spike
L35520-02	ZIPLOCK -- RELOG OF L34674-05 || In the Inorganic cooler.
L35520-03	ZIPLOCK -- RELOG OF L34674-06 || In the Inorganic cooler.
L35520-04	ZIPLOCK -- RELOG OF L34674-08 || In the Inorganic cooler.
L35624-01	ZIPLOCK(2) || In the Inorganic cooler.
WG418244LFB2	ICPMS LFB

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG418364

Date Reported:	23-Feb-17
Run ID:	R1506494
Date Analyzed:	23-Feb-17
ICAL Workgroup:	
Instrument ID:	METALSDIG

WG418244PBS

Tag: 1 Measured: 2/23/2017 10:20:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

WG418244LFB2

Tag: Measured: 2/23/2017 10:44:33 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	SCN VOLUME	PREP	0.25	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

L35178-01

Tag: 1 Measured: 2/23/2017 11:09:06 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L35465-01

Tag: 1 Measured: 2/23/2017 11:33:39 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L35520-01

Tag: 1 Measured: 2/23/2017 11:58:12 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L35520-01DUP

Tag: 1 Measured: 2/23/2017 12:22:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

L35520-01MS

Tag: Measured: 2/23/2017 12:47:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	SCN VOLUME	PREP	0.25	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

L35520-01MSD

Tag: Measured: 2/23/2017 1:11:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	SCN VOLUME	PREP	0.25	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

L35520-02

Tag: Measured: 2/23/2017 1:36:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L35520-03

Tag: Measured: 2/23/2017 2:00:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L35520-04

Tag: Measured: 2/23/2017 2:25:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L35624-01

Tag: 3 Measured: 2/23/2017 2:50:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

1312

QC List Type: I-X-1312
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: CSTDX3-SP-1312
Group ID: SP-G-1312
Method Ref: M1312
SOP Ref: SOPSO013

WG418244

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: JJO
ACZ Dept: 20
Create Date: 02/21/2017 12:42
Start Date/Time: 02/21/2017 12:45
End Date/Time: 02/22/2017 13:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Extraction Fluid pH (units)	Extraction Time (min)	Pre Filter pH (units)	Post Filter pH (units)	Time In	Time Out	Temperature (C)	Comments
1	WG418244CSTD1	NONE	As Rec		02/21/17 12:45			10.06		10.06	10.06	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.5	
2	WG418244CSTD2	NONE	As Rec		02/21/17 13:57			7.01		7.01	7.01	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.5	
3	WG418244CSTD3	NONE	As Rec		02/21/17 15:10			2		2.01	2.01	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.4	
4	WG418244ICV	PCN51722	As Rec		02/21/17 16:23			4		3.98	3.98	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.6	
5	WG418244PBS	NONE	As Rec		02/21/17 17:36	0	2000	5.02	1080	4.98	4.88	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	21.7	
6	WG418244LFB1	II170220-2	As Rec		02/21/17 18:48	0	2000	5.02	1080	4.98	4.88	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	21.7	
7	WG418244LFB2	MS170117-3	As Rec		02/21/17 20:01	0	2000	5.02	1080	4.98	4.88	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	21.7	
8	L35178-01	HERMOSA TAILINGS	As Rec		02/21/17 21:14	100	2000	5.02	1080	8.01	7.92	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.5	
9	L35465-01	CRAIG STATION FLY AS	As Rec		02/21/17 22:27	100	2000	5.02	1080	11.36	11.4	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.2	
10	L35465-01MS	II170220-2	As Rec		02/21/17 23:39	100	2000	5.02	1080	11.36	11.4	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.2	
11	L35465-01MSD	II170220-2	As Rec		02/22/17 0:52	100	2000	5.02	1080	11.36	11.4	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.2	
12	L35520-01	TP-6_7_9 (2-5)	As Rec		02/22/17 2:05	100	2000	5.02	1080	8.74	8.42	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.5	
13	L35520-01DUP	NONE	As Rec		02/22/17 3:18	100	2000	5.02	1080	8.58	7.93	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.8	
14	L35520-01MS	MS170117-3	As Rec		02/22/17 4:30	100	2000	5.02	1080	8.74	8.42	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.5	
15	L35520-01MSD	MS170117-3	As Rec		02/22/17 5:43	100	2000	5.02	1080	8.74	8.42	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	20.5	
16	L35520-02	SB-12GT (0-27)	As Rec		02/22/17 6:56	50	1000	5.02	1080	8.35	7.94	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	21	
17	L35520-03	SB-13AL (0-25)	As Rec		02/22/17 8:09	50	1000	5.02	1080	7.93	7.16	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	21.1	
18	WG418244CCV1	PCN51722	As Rec		02/22/17 9:21			4		4.02	4.02	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	22	
19	L35520-04	SB-14AL (15-35)	As Rec		02/22/17 10:34	50	1000	5.02	1080	9.03	8.25	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	21	
20	L35624-01	TAILINGS PASTE SAMPL	As Rec		02/22/17 11:47	50	1000	5.02	1080	11.7	11.68	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	21.3	
21	WG418244CCV2	PCN51722	As Rec		02/22/17 13:00			4		4	4	2/21/2017 2:45:00 PM	2/22/2017 8:45:00 AM	22.2	

Report Comments:

Internal Comments

AREV: JJO 2/22/17
Initials, Date

SREV: BKD 2/23/17
Initials, Date

1312

QC List Type: I-X-1312
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: CSTDX3-SP-1312
Group ID: SP-G-1312
Method Ref: M1312
SOP Ref: SOPSO013

WG418244

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: JJO
ACZ Dept: 20
Create Date: 02/21/2017 12:42
Start Date/Time: 02/21/2017 12:45
End Date/Time: 02/22/2017 13:00

Sample	Login Comments
L35178-01	ZIPLOCK -- RELOG OF L34285-01 || In the Inorganic cooelr.
L35465-01	BUCKET || In the Inorganic cooler.
L35465-01MS	ICP Spike
L35465-01MSD	ICP Spike
L35520-01	ZIPLOCK -- RELOG OF L34445-01 || In the Inorganic cooler.
L35520-01MS	ICPMS Spike
L35520-01MSD	ICPMS Spike
L35520-02	ZIPLOCK -- RELOG OF L34674-05 || In the Inorganic cooler.
L35520-03	ZIPLOCK -- RELOG OF L34674-06 || In the Inorganic cooler.
L35520-04	ZIPLOCK -- RELOG OF L34674-08 || In the Inorganic cooler.
L35624-01	ZIPLOCK(2) || In the Inorganic cooler.
WG418244LFB1	ICP LFB
WG418244LFB2	ICPMS LFB

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L35520-1703061623

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: JJO
Date: 2/22/17

Approved: BRD
Date: 2/23/17

Analyst: JJO

Workgroup: WG418244

Analysis Date: 2/22/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?	✓		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?	✓		
8. Is the appropriate spike in the computer-designated line?	✓		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?	✓		
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
1312 fluid #2	SI170116-1	1/16/18
Buffer 2	PCN 50775	1/31/18
Buffer 4	PCN 51722	4/30/18
Buffer 7	PCN 49402	7/31/17
Buffer 10	PCN 51935	6/30/18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

1312

WG418244

ACZ Laboratories, Inc

QC List Type: I-X-1312
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: CSTDX3-SP-1312
Group ID: SP-G-1312
Method Ref: M1312
SOP Ref: SOPSO013

Instrument ID: SOILSPREP
Analyst: JJO
ACZ Dept: 20
Create Date: 02/21/2017 12:42
Start Date/Time: 2/21/17 1245
End Date/Time: 2/22/17 1300

	SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Extraction Fluid pH (units)	Extraction Time (min)	Pre Filter pH (units)	Post Filter pH (units)	Time In 2/21/17	Time Out 2/22/17	Temperature (C)	Comments
	1	WG418244CSTD1	NONE						10.06		10.06	10.06			20.5	
	2	WG418244CSTD2	NONE						7.01		7.01	7.01			20.5	
	3	WG418244CSTD3	NONE						2.00		2.01	2.01			20.4	
	4	WG418244ICV	PCN51722						4.00		3.98	3.98			20.6	
	5	WG418244PBS	NONE				0	2000	5.02		4.98	4.88	1445	0845	21.7	
	6	WG418244LFB1	II170220-2				⊥	⊥	⊥		⊥	⊥	⊥	⊥	⊥	
	7	WG418244LFB2	MS170117-3				⊥	⊥	⊥		⊥	⊥	⊥	⊥	⊥	
	8	L35178-01	HERMOSA TAILINGS				100	⊥	⊥		8.01	7.92	⊥	⊥	20.5	
EB	9	L35465-01	CRAIG STATION FLY AS				⊥	⊥	⊥		11.36	11.40	⊥	⊥	20.2	
	10	L35465-01MS	II170220-2				⊥	⊥	⊥		⊥	⊥	⊥	⊥	⊥	
	11	L35465-01MSD	II170220-2				⊥	⊥	⊥		⊥	⊥	⊥	⊥	⊥	
	12	L35520-01	TP-6_7_9 (2-5)				⊥	⊥	⊥		8.74	8.42	⊥	⊥	20.5	
	13	L35520-01DUP	NONE				⊥	⊥	⊥		8.58	7.93	⊥	⊥	20.6	
	14	L35520-01MS	MS170117-3				⊥	⊥	⊥		8.74	8.42	⊥	⊥	20.5	
	15	L35520-01MSD	MS170117-3				⊥	⊥	⊥		8.74	8.42	⊥	⊥	20.5	
	16	L35520-02	SB-12GT (0-27)				50	1000	⊥		8.35	7.94	⊥	⊥	21.0	
	17	L35520-03	SB-13AL (0-25)				⊥	⊥	⊥		7.93	7.16	⊥	⊥	21.1	
	18	WG418244CCV1	PCN51722						4.00		4.02	4.02			22.0	
	19	L35520-04	SB-14AL (15-35)				50	1000	5.02		9.03	8.25	1445	0845	21.0	
EB	20	L35624-01	TAILINGS PASTE SAMPL				⊥	⊥	⊥		11.70	11.68	⊥	⊥	21.3	
	21	WG418244CCV2	PCN51722						4.00		4.00	4.00			22.2	

Report Comments:

AREV: _____
Initials, Date

Internal Comments

SREV: _____
Initials, Date

1312

WG418244

ACZ Laboratories, Inc

QC List Type: I-X-1312
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: CSTDX3-SP-1312
Group ID: SP-G-1312
Method Ref: M1312
SOP Ref: SOPSO013

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 02/21/2017 12:42
Start Date/Time:
End Date/Time:

Sample	Login Comments
L35178-01	ZIPLOCK -- RELOG OF L34285-01 || In the Inorganic cooelr.
L35465-01	BUCKET || In the Inorganic cooler.
L35465-01MS	ICP Spike
L35465-01MSD	ICP Spike
L35520-01	ZIPLOCK -- RELOG OF L34445-01 || In the Inorganic cooler.
L35520-01MS	ICPMS Spike
L35520-01MSD	ICPMS Spike
L35520-02	ZIPLOCK -- RELOG OF L34674-05 || In the Inorganic cooler.
L35520-03	ZIPLOCK -- RELOG OF L34674-06 || In the Inorganic cooler.
L35520-04	ZIPLOCK -- RELOG OF L34674-08 || In the Inorganic cooler.
L35624-01	ZIPLOCK(2) || In the Inorganic cooler.
WG418244LFB1	ICP LFB
WG418244LFB2	ICPMS LFB

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # 416244

Sample # PBS/LFB1/LFB2

Preliminary Evaluations

Sample is 100 % Solid

Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? _____

> 3.1 cm² ? _____

Method of Reduction: _____

Extraction

Weight of Sample (100g min) 0

Extraction Fluid Used #2

SCN of Extraction Fluid SI170116-1

pH of Extraction Fluid 5.02

Vol. of Extraction Fluid (mL) 2000

Time in Extractor 1445

Time out of Extractor 0845

18 Hrs ± 2 Hrs

High Temperature (C) 23

Low Temperature (C) 22

23° C ± 2° C

Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

Proceed to Extraction

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # _____

Sample # L35178-01

Preliminary Evaluations

Sample is 100 % Solid

Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? _____

> 3.1 cm² ? _____

Method of Reduction: _____

Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

Proceed to Extraction

Extraction

Weight of Sample (100g min)	100.0	
Extraction Fluid Used	#2	
SCN of Extraction Fluid	ST170116-1	
pH of Extraction Fluid	5.02	
Vol. of Extraction Fluid (mL)	2000	
Time in Extractor	1445	18 Hrs ± 2 Hrs
Time out of Extractor	0845	
High Temperature (C)	23	23° C ± 2° C
Low Temperature (C)	22	

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # _____

Sample # L35465-01 / L35465-01 MS/MSD

Preliminary Evaluations

Sample is 100 % Solid

Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? _____

> 3.1 cm² ? _____

Method of Reduction: _____

Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

Proceed to Extraction

Extraction

Weight of Sample (100g min)	100	
Extraction Fluid Used	#2	
SCN of Extraction Fluid	SF170116-1	
pH of Extraction Fluid	5.02	
Vol. of Extraction Fluid (mL)	2000	
Time in Extractor	1445	18 Hrs ± 2 Hrs
Time out of Extractor	0845	
High Temperature (C)	23	23° C ± 2° C
Low Temperature (C)	22	

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # _____

Sample # L35520-01/L35520-01 MS/MSD

Preliminary Evaluations

Sample is 100 % Solid

→ Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

→ Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

→ The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

→ Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? _____

> 3.1 cm² ? _____

Method of Reduction: _____

→ Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

→ Proceed to Extraction

Extraction

→

Weight of Sample (100g min)	100	
Extraction Fluid Used	#2	
SCN of Extraction Fluid	SI170116-1	
pH of Extraction Fluid	5.02	
Vol. of Extraction Fluid (mL)	2000	
Time in Extractor	1445	18 Hrs ± 2 Hrs
Time out of Extractor	0645	
High Temperature (C)	23	23° C ± 2° C
Low Temperature (C)	22	

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # _____

Sample # L35520-01 Dup

Preliminary Evaluations

Sample is 100 % Solid → Proceed to Particle Size / Surface Area Determination

Sample is Multiphase → Liquid-Solid Separation

Filter Weight: _____
Filtrate Container Weight: _____
Sample Weight (100g min): _____
Weight of Filtrate: _____
Weight of Solid _____
Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid → The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid → Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? _____
> 3.1 cm² ? _____
Method of Reduction: _____

Extraction Fluid Determination

Sample Description _____
Sampling Location _____
Testing for Cyanide _____

Proceed to Extraction

Extraction

Weight of Sample (100g min)	100	
Extraction Fluid Used	#2	
SCN of Extraction Fluid	SI170116-1	
pH of Extraction Fluid	5.02	
Vol. of Extraction Fluid (mL)	2000	
Time in Extractor	1445	18 Hrs ± 2 Hrs
Time out of Extractor	0845	
High Temperature (C)	23	23° C ± 2° C
Low Temperature (C)	22	

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # _____

Sample # L35520-02
-03
-04

Preliminary Evaluations

Sample is 100 % Solid

Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? _____

> 3.1 cm² ? _____

Method of Reduction: _____

Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

Proceed to Extraction

Extraction

Weight of Sample (100g min) 50

Extraction Fluid Used #2

SCN of Extraction Fluid SF170116-1

pH of Extraction Fluid 5.02

Vol. of Extraction Fluid (mL) 1000

Time in Extractor 1445

Time out of Extractor 0845

} 18 Hrs ± 2 Hrs

High Temperature (C) 23

Low Temperature (C) 22

} 23° C ± 2° C

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # _____

Sample # L35624-01

Preliminary Evaluations

Sample is 100 % Solid

↓

Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

↓

Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

↓

The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

↓

Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? _____

> 3.1 cm² ? _____

Method of Reduction: _____

↓

Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

↓

Proceed to Extraction

Extraction

↓

Weight of Sample (100g min)	50	
Extraction Fluid Used	#2	
SCN of Extraction Fluid	SI170116-1	
pH of Extraction Fluid	5.02	
Vol. of Extraction Fluid (mL)	1000	
Time in Extractor	1445	18 Hrs ± 2 Hrs
Time out of Extractor	0845	
High Temperature (C)	23	23° C ± 2° C
Low Temperature (C)	22	

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG418244

Date Reported: 23-Feb-17
Run ID: R1505929
Date Analyzed: 21-Feb-17
ICAL Workgroup:
Instrument ID: SOILSPREP

WG418244ICV

Tag:

Measured: 2/21/2017 4:23:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4	1		units	++					
SREV	POST FILTER PH	PREP	3.98	1		units	++					
SREV	PRE FILTER PH	PREP	3.98	1		units	++					
SREV	TEMPERATURE	PREP	20.6	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					

WG418244PBS

Tag:

Measured: 2/21/2017 5:36:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	5.02	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	4.88	1		units	++					
SREV	PRE FILTER PH	PREP	4.98	1		units	++					
SREV	TEMPERATURE	PREP	21.7	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	1		g	++					

WG418244LFB1

Tag:

Measured: 2/21/2017 6:48:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	5.02	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	4.88	1		units	++					
SREV	PRE FILTER PH	PREP	4.98	1		units	++					
SREV	TEMPERATURE	PREP	21.7	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	1		g	++					

WG418244LFB2

Tag:

Measured: 2/21/2017 8:01:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	5.02	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	4.88	1		units	++					
SREV	PRE FILTER PH	PREP	4.98	1		units	++					
SREV	TEMPERATURE	PREP	21.7	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	1		g	++					

L35178-01

Tag:

Measured: 2/21/2017 9:14:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	5.02	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	7.92	1		units	++					
SREV	PRE FILTER PH	X-1312	8.01	1		units	++					
SREV	TEMPERATURE	X-1312	20.5	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L35465-01

Tag:

Measured: 2/21/2017 10:27:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	5.02	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	11.4	1		units	++					
SREV	PRE FILTER PH	X-1312	11.36	1		units	++					
SREV	TEMPERATURE	X-1312	20.2	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L35465-01MS

Tag:

Measured: 2/21/2017 11:39:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	5.02	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	11.4	1		units	++					
SREV	PRE FILTER PH	PREP	11.36	1		units	++					
SREV	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	100	1		g	++					

L35465-01MSD

Tag:

Measured: 2/22/2017 12:52:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	5.02	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	11.4	1		units	++					
SREV	PRE FILTER PH	PREP	11.36	1		units	++					
SREV	TEMPERATURE	PREP	20.2	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	100	1		g	++					

L35520-01

Tag: Measured: 2/22/2017 2:05:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	5.02	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	8.42	1		units	++					
SREV	PRE FILTER PH	X-1312	8.74	1		units	++					
SREV	TEMPERATURE	X-1312	20.5	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L35520-01DUP

Tag: Measured: 2/22/2017 3:18:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	5.02	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	7.93	1		units	++					
SREV	PRE FILTER PH	PREP	8.58	1		units	++					
SREV	TEMPERATURE	PREP	20.8	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	100	1		g	++					

L35520-01MS

Tag: Measured: 2/22/2017 4:30:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	5.02	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	8.42	1		units	++					
SREV	PRE FILTER PH	PREP	8.74	1		units	++					
SREV	TEMPERATURE	PREP	20.5	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	100	1		g	++					

L35520-01MSD

Tag: Measured: 2/22/2017 5:43:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	5.02	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	8.42	1		units	++					
SREV	PRE FILTER PH	PREP	8.74	1		units	++					
SREV	TEMPERATURE	PREP	20.5	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	100	1		g	++					

L35520-02

Tag: Measured: 2/22/2017 6:56:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	5.02	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	7.94	1		units	++					
SREV	PRE FILTER PH	X-1312	8.35	1		units	++					
SREV	TEMPERATURE	X-1312	21.0	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	1000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	50	1		g	++					

L35520-03

Tag: Measured: 2/22/2017 8:09:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	5.02	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	7.16	1		units	++					
SREV	PRE FILTER PH	X-1312	7.93	1		units	++					
SREV	TEMPERATURE	X-1312	21.1	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	1000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	50	1		g	++					

WG418244CCV1

Tag: Measured: 2/22/2017 9:21:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4	1		units	++					
SREV	POST FILTER PH	PREP	4.02	1		units	++					
SREV	PRE FILTER PH	PREP	4.02	1		units	++					
SREV	TEMPERATURE	PREP	22	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					

L35520-04

Tag: Measured: 2/22/2017 10:34:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	5.02	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	8.25	1		units	++					
SREV	PRE FILTER PH	X-1312	9.03	1		units	++					
SREV	TEMPERATURE	X-1312	21.0	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	1000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	50	1		g	++					

L35624-01

Tag:

Measured: 2/22/2017 11:47:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	5.02	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	11.68	1		units	++					
SREV	PRE FILTER PH	X-1312	11.7	1		units	++					
SREV	TEMPERATURE	X-1312	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	1000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	50	1		g	++					

WG418244CCV2

Tag:

Measured: 2/22/2017 1:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4	1		units	++					
SREV	POST FILTER PH	PREP	4	1		units	++					
SREV	PRE FILTER PH	PREP	4	1		units	++					
SREV	TEMPERATURE	PREP	22.2	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company
Project ID: L35520

Metals Analysis

WG418596 **ICPMS Dissolved 1312**

Sample	Date	SCN	As	Be	Cd	Pb	Sb	Se	Th	Tl	U
WG418596ICV	02/28/17 12:06	MS161128-3	X	X	X	X	X	X	X	X	X
WG418596ICB	02/28/17 12:09		X	X	X	X	X	X	X	X	X
WG418596ICSA	02/28/17 12:12		X	X	X		X	X	X		X
WG418596ICSAB	02/28/17 12:15	MS161201-10	X	X	X	X	X	X	X	X	X
WG418244PBS	02/28/17 12:22		X	X	X	X	X	X	X	X	X
WG418244LFB2	02/28/17 12:25	MS170117-3	X	X	X	X	X	X	X	X	X
L35178-01	02/28/17 12:28		X		X	X	X	X	X	X	X
L35465-01	02/28/17 12:31		X	X		X	X	X		X	
L35520-01	02/28/17 12:35		X		X			X			
L35520-01DUP	02/28/17 12:38		X	X	X	X	X	X	X	X	X
L35520-01MS	02/28/17 12:41	MS170117-3	X	X	X	X	X	X	X	X	X
L35520-01MSD	02/28/17 12:44	MS170117-3	X	X	X	X	X	X	X	X	X
WG418596CCV1	02/28/17 12:47	MS170206-4	X	X	X	X	X	X	X	X	X
WG418596CCB1	02/28/17 12:50		X	X	X	X	X	X	X	X	X
L35520-02	02/28/17 12:54		X		X			X			
L35520-03	02/28/17 12:57		X		X			X			
L35520-04	02/28/17 13:00		X		X			X			
L35624-01	02/28/17 13:03		X	X	X	X	X	X	X	X	X
L35624-01SDL	02/28/17 13:07		X	X	X	X	X	X	X	X	X
WG418596CCV2	02/28/17 13:10	MS170206-4	X	X	X	X	X	X	X	X	X
WG418596CCB2	02/28/17 13:13		X	X	X	X	X	X	X	X	X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID: L35520
Date Received: 02/13/2017 15:13
Received By:
Date Printed: 2/13/2017

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
UNKNOWN		NA		

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID:	L35520
Date Received:	02/13/2017 15:13
Received By:	
Date Printed:	2/13/2017

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

L35520 - Relog

NPL 2-13-17

ACZ Laboratories, Inc. 37445

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc
E-mail: leah@wolfmartininc.com, Rbenedetti@[redacted]@strategotech.com
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: R.Benedetti **Sampler's Site Information** **State** Idaho **Zip code** 83276 **Time Zone** -7:00

***Sampler's Signature:** I attest to the authenticity and validity of this sample. I understand that mislabeling the time/date/location, or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See attached list #1	See attached list #2						
TP-6_7_9 (2-5)	8-24-16	SO	1 ea	X							
TP-12 (2-4)	8-25-16	SO	1 ea	X							
TP-15_16 (2-13)	8-25-16	SO	1 ea	X							
TP-20 (1-4)	8-25-16	SO	1 ea	X							

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Chain of custody (2 of 2), Lists #1 and #2 of required testing for all samples are attached

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Rocky Benedetti	12-2-16 2:00PM	NPL	12/6/16 1410

FRMAD050.03.14.13 White - Return with sample. Yellow - Retain for your records.

L35520 Chain of Custody

C35520 - Relog.

WPC 2-13-17

ACZ Laboratories, Inc. — CHAIN of CUSTODY

L34674

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc
E-mail: leah@wolfmartininc.com, Rbenedetti@strata-geotech.com
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Rocky Bene
Sampler's Site Information State Idaho Zip code 83276 Time Zone -7:00
*Sampler's Signature: Rocky Benedetti

"I attest to the authenticity and validity of this sample. I understand that mislabeling the time/date/location, or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED (attach list or use quote number)

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See attached list #1	See attached list #2						
SB-06GT (1.5-10)	9-13-16	SO	1 ea	X							
SB-07GT (0-4)	9-21-16	SO	1 ea	X							
SB-09GT (8-12)	9-21-16	SO	1 ea	X							
SB-09GT (18-22)	9-21-16	SO	1 ea	X							
SB-12GT (0-27)	9-22-16	SO	1 ea	X							
SB-13AL (0-25)	9-13-16	SO	1 ea	X							
SB-14AL (0-15)	9-23-16	SO	1 ea	X							
SB-14AL (15-35)	9-24-16	SO	1 ea	X							
SB-15AL (0-25)	9-11-16	SO	1 ea	X							
SB-15AL (25-50)	9-11-16	SO	1 ea	X							

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Chain of custody (1 of 2), Lists #1 and #2 of required testing for all samples are attached.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Rocky Benedetti	12-14-16 : 11:00AM	WPC	12/16/16 1415

WPC 2-13-17 L34674 Chain of Custody 2. 3. 4.

FRMAD050.03.14.13 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

March 17, 2017

Report to:
Molly Prickett
Monsanto Company
1853 Hwy 34 N
Soda Springs, ID 83276

cc: Leah Wolf Martin, Rocky Benedetti

Bill to:
Molly Pricket
Monsanto Company
1853 Highway 34
Soda Springs, ID 83276

Project ID: 4512184569
ACZ Project ID: L35641

Molly Prickett:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 13, 2017. This project has been assigned to ACZ's project number, L35641. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L35641. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 16, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber has reviewed and approved this report.

MONSANTO COMPANY

Level IV Data Package – L35641
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        iii. Matrix/Analytical Spike Recoveries
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ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Summary

ACZ Project ID: ***L35641***

SAMPLE ID	LAB NO.	SAMPLE DATE	SAMPLE TIME
RC-40V1(22-37)	L35641-01	1/31/2017	7:35
RC-03V1(20-30)	L35641-02	1/31/2017	7:35
RC-07V1(40-55)	L35641-03	1/31/2017	7:35
RC-11V1(30-40)	L35641-04	1/31/2017	7:35
RC-19V1(42-52)	L35641-05	1/31/2017	7:35
RC-21V1(27-37)	L35641-06	1/31/2017	7:35
RC-21V1(107-117)	L35641-07	1/31/2017	7:35
RC-24V1(27-42)	L35641-08	1/31/2017	7:35
RC-24V1(102-112)	L35641-09	1/31/2017	7:35
RC-28V1(37-48)	L35641-10	1/31/2017	7:35
RC-38V1(52-62)	L35641-11	1/31/2017	7:35
RC-01V1(5-15)	L35641-12	1/31/2017	7:35
RC-10V1(5-22)	L35641-13	1/31/2017	7:35
SS-16 (GRAB)	L35641-14	1/31/2017	7:35
RC-10V1(5-22)DUP	L35641-15	1/31/2017	7:35

Monsanto Company

March 17, 2017

Project ID: 4512184569
ACZ Project ID: L35641

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 15 soil samples from Monsanto Company on February 13, 2017. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L35641. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-40V1(22-37)

ACZ Sample ID: ***L35641-01***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		0.94	B		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		12.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		11.1			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	1.2		*	%	0.1	0.5	03/13/17 12:55	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.03	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur HNO3 Residue		1	0.03	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Organic Residual		1	0.03	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Sulfate		1		U	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Total		1	0.03	B	*	%	0.01	0.1	03/13/17 0:00	sck
Total Sulfur minus Sulfate		1	0.03	B	*	%	0.01	0.1	03/13/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 13:11	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 9:30	dbt

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: RC-03V1(20-30)

ACZ Sample ID: ***L35641-02***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		7.19			t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		15.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		7.8			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	1.5		*	%	0.1	0.5	03/13/17 14:16	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.17		*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur HNO3 Residue		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Organic Residual		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Pyritic Sulfide		1	0.15		*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Sulfate		1	0.06	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Total		1	0.23		*	%	0.01	0.1	03/13/17 0:00	sck
Total Sulfur minus Sulfate		1	0.17		*	%	0.01	0.1	03/13/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 13:18	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 9:38	dbt

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-07V1(40-55)

ACZ Sample ID: ***L35641-03***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		0.94	B		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		16.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		15.1			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	1.6		*	%	0.1	0.5	03/13/17 14:42	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur HNO3 Residue		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Organic Residual		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Sulfate		1	0.01	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Total		1	0.03	B	*	%	0.01	0.1	03/13/17 0:00	sck
Total Sulfur minus Sulfate		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 13:26	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 9:47	dbt

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: RC-11V1(30-40)

ACZ Sample ID: ***L35641-04***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		32.5			t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		129			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		96.5			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	12.9		*	%	0.1	0.5	03/13/17 11:17	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	1.01		*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur HNO3 Residue		1	0.04	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Organic Residual		1	0.04	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Pyritic Sulfide		1	0.97		*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Sulfate		1	0.03	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Total		1	1.04		*	%	0.01	0.1	03/13/17 0:00	sck
Total Sulfur minus Sulfate		1	1.01		*	%	0.01	0.1	03/13/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 13:34	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 9:55	dbt

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-19V1(42-52)

ACZ Sample ID: ***L35641-05***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		0.63	B		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		81.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		80.4			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	8.1		*	%	0.1	0.5	03/14/17 3:27	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur HNO3 Residue		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Organic Residual		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Sulfate		1		U	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Total		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Total Sulfur minus Sulfate		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 13:42	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 10:04	dbt

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: RC-21V1(27-37)

ACZ Sample ID: ***L35641-06***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		51.6			t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		151			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		99.4			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	15.1		*	%	0.1	0.5	03/14/17 8:51	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	1.63		*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur HNO3 Residue		1	0.06	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Organic Residual		1	0.06	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Pyritic Sulfide		1	1.57		*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Sulfate		1	0.02	B	*	%	0.01	0.1	03/13/17 0:00	sck
Sulfur Total		1	1.65		*	%	0.01	0.1	03/13/17 0:00	sck
Total Sulfur minus Sulfate		1	1.63		*	%	0.01	0.1	03/13/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 13:49	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 10:12	dbt

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-21V1(107-117)

ACZ Sample ID: ***L35641-07***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		38.8			t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		114			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		75.3			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	11.4		*	%	0.1	0.5	03/14/17 14:14	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	1.17		*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1	0.06	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1	0.06	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1	1.11		*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1	0.07	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1	1.24		*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1	1.17		*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 13:57	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 10:21	dbt

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: RC-24V1(27-42)

ACZ Sample ID: ***L35641-08***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		1.25	B		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		40.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		38.8			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	4.0		*	%	0.1	0.5	03/14/17 19:38	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.03	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1	0.02	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1	0.02	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1	0.01	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1	0.01	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1	0.04	B	*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1	0.03	B	*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 14:05	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 10:29	dbt

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-24V1(102-112)

ACZ Sample ID: ***L35641-09***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		95.6			t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		90.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		-5.6			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	9.0		*	%	0.1	0.5	03/15/17 1:01	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	3.08		*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1	0.13		*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1	0.13		*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1	2.95		*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1	3.06		*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1	3.06		*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 14:13	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 10:38	dbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-28V1(37-48)

ACZ Sample ID: ***L35641-10***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		0.94	B		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		16.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		15.1			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	1.6		*	%	0.1	0.5	03/13/17 15:09	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.02	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1	0.02	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1	0.02	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1	0.01	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1	0.03	B	*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1	0.02	B	*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 14:20	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 10:47	dbt

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: RC-38V1(52-62)

ACZ Sample ID: ***L35641-11***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		1.88	B		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		5.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		3.1			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	0.5		*	%	0.1	0.5	03/13/17 15:36	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1	0.03	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1	0.03	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1	0.03	B	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1	0.06	B	*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1	0.03	B	*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 14:28	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 10:55	dbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-01V1(5-15)

ACZ Sample ID: ***L35641-12***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		168			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		168			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	16.8		*	%	0.1	0.5	03/15/17 6:25	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 14:36	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 11:04	dbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-10V1(5-22)

ACZ Sample ID: ***L35641-13***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		301			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		301			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	30.1		*	%	0.1	0.5	03/15/17 11:48	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 14:44	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 11:12	dbt

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SS-16 (GRAB)

ACZ Sample ID: ***L35641-14***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		30.0			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		30.0			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	3.0		*	%	0.1	0.5	03/13/17 16:03	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 14:51	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 11:21	dbt

** Please refer to Qualifier Reports for details.*

Monsanto Company
Project ID: 4512184569
Sample ID: RC-10V1(5-22)DUP

ACZ Sample ID: ***L35641-15***
Date Sampled: *01/31/17 07:35*
Date Received: *02/13/17*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4			U		t CaCO3/Kt	0.31	3.1	03/17/17 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		306			t CaCO3/Kt	1	5	03/17/17 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		306			t CaCO3/Kt			03/17/17 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1	30.6		*	%	0.1	0.5	03/15/17 17:12	bcc
Sulfur Forms	M600/2-78-054 3.2.4-MOD									
Sulfur HCl Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur HNO3 Residue		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Organic Residual		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Pyritic Sulfide		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Sulfur Total		1		U	*	%	0.01	0.1	03/14/17 0:00	sck
Total Sulfur minus Sulfate		1		U	*	%	0.01	0.1	03/14/17 0:00	sck

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								03/03/17 14:59	jjo
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								03/10/17 11:29	dbt

** Please refer to Qualifier Reports for details.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Monsanto Company

ACZ Project ID: ***L35641***

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG419311													
L35641-04DUP	DUP	03/13/17 16:40			12.9	12.88	%				0	20	
L35641-04MS	MS	03/13/17 22:04	SI141024-2	3	12.9	15.5	%	87	70	130			
WG419311LCSS	LCSS	03/17/17 6:56	PCN49918	7.21		8.5	%	118	80	120			
WG419311PBS	PBS	03/17/17 12:19				.13	%		-0.2	0.2			
WG419309													
WG419309PBS	PBS	03/13/17 12:02				U	%		-0.2	0.2			
WG419309LCSS	LCSS	03/13/17 12:28	PCN49913	4.96		5.05	%	102	80	120			
L35641-01MS	MS	03/13/17 13:22	SI141024-1	1	1.2	2.08	%	88	70	130			
L35641-01DUP	DUP	03/13/17 13:49			1.2	1.1	%				9	20	

Sulfur Organic Residual M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG419299													
L35641-01DUP	DUP	03/13/17 15:20			.03	.03	%				0	20	RA

Sulfur Pyritic Sulfide M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG419299													
L35641-01DUP	DUP	03/13/17 15:20			U	U	%				0	20	RA

Sulfur Sulfate M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG419299													
L35641-01DUP	DUP	03/13/17 15:20			U	.01	%				200	20	RA

Sulfur Total M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG419299													
WG419299PBS	PBS	03/13/17 8:45				U	%		-0.03	0.03			
WG419299LCSS	LCSS	03/13/17 10:23	PCN52723	3.82		3.95	%	103	80	120			
L35641-01MS	MS	03/13/17 13:41	PCN52557	1.32	.03	1.23	%	91	80	120			
L35641-01DUP	DUP	03/13/17 15:20			.03	.04	%				29	20	RA

Total Sulfur Minus Sulfate M600/2-78-054 3.2.4-MOD

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG419299													
L35641-01DUP	DUP	03/13/17 15:20			.03	.03	%				0	20	RA

Monsanto Company ACZ Project ID: ***L35641***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L35641-01	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-02	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-03	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-04	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L35641***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L35641-05	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-06	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-07	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-08	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L35641***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L35641-09	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-10	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-11	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-12	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L35641***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L35641-13	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-14	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L35641-15	WG419299	Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
Sulfur HCl Residue	M600/2-78-054 3.2.4-MOD
Sulfur HNO3 Residue	M600/2-78-054 3.2.4-MOD
Sulfur Organic Residual	M600/2-78-054 3.2.4-MOD
Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD
Sulfur Sulfate	M600/2-78-054 3.2.4-MOD
Sulfur Total	M600/2-78-054 3.2.4-MOD
Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD

Neutralization Potential

WG419309

ACZ Laboratories, Inc

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 03/13/2017 10:12
Start Date/Time: 03/13/2017 10:15
End Date/Time: 03/13/2017 16:30

SE Q	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG419309CSTD1	NONE	RPLL		03/13/17 10:15		10							
2	WG419309CSTD2	NONE	RPLL		03/13/17 10:41		7							
3	WG419309CSTD3	NONE	RPLL		03/13/17 11:08		2.05							
4	WG419309ICV	PCN51722	RPLL		03/13/17 11:35		3.99							
5	WG419309PBS	NONE	RPLL		03/13/17 12:02		7	2	40	0.1	39.8	0.1	.05	
6	WG419309LCSS	PCN49913	RPLL		03/13/17 12:28		7	2	40	0.1	19.8	0.1	5.05	
7	L35641-01	RC-40V1(22-37)	RPLL		03/13/17 12:55	Slight	7	2	40	0.1	35.4	0.1	1.15	
8	L35641-01MS	SI141024-1	RPLL		03/13/17 13:22	Slight	7	2	40	0.1	31.7	0.1	2.08	
9	L35641-01DUP	NONE	RPLL		03/13/17 13:49	Slight	7	2	40	0.1	35.6	0.1	1.10	
10	L35641-02	RC-03V1(20-30)	RPLL		03/13/17 14:16	Slight	7	2	40	0.1	34	0.1	1.50	
11	L35641-03	RC-07V1(40-55)	RPLL		03/13/17 14:42	Slight	7	2	40	0.1	33.6	0.1	1.60	
12	L35641-10	RC-28V1(37-48)	RPLL		03/13/17 15:09	Slight	7	2	40	0.1	33.8	0.1	1.55	
13	L35641-11	RC-38V1(52-62)	RPLL		03/13/17 15:36	Slight	7	2	40	0.1	38	0.1	.50	
14	L35641-14	SS-16 (GRAB)	RPLL		03/13/17 16:03	Slight	7	2	40	0.1	28	0.1	3.00	
15	WG419309CCV	PCN51722	RPLL		03/13/17 16:29		4.03							

Sample	Login Comments
L35641-01	ZIPLOCK || Delivered to Soils.
L35641-02	ZIPLOCK || Delivered to Soils.
L35641-03	ZIPLOCK || Delivered to Soils.
L35641-10	ZIPLOCK || Delivered to Soils.
L35641-11	ZIPLOCK || Delivered to Soils.
L35641-14	BUCKET || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: Bcc 3-13-17
Initials, Date

SREV: CRA 3-15-17
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 3·13·17

Approved: CLA
Date: 3·15·17

Analyst: BCC

Workgroup: 419309

Analysis Date: 3·13·2017

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X	✓	
2. Is the %solid or TS attached for dilution factors?			X ✓
3. Were proper volumes of reagents used per final volume?	X	✓	
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)? RPLL	X	✓	
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X ✓
6. Did the RPD pass?	X	✓	
7. Does all the spike information correlate with each other?	X	✓	
8. Is the appropriate spike in the computer-designated line?	X	✓	
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X	✓	
10. Is the standard/reagent information complete and current?	X	✓	
11. Is your instrument calibration passing (and included in the data package if needed)?	X	✓	
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?		✓	

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
0.1 N HCl	50296	8·31·17
0.1 N NaOH	52590	6·30·18
Buffer 2	50775	1·31·18
Buffer 7	49902	7·31·17
Buffer 10	51935	6·30·18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG419309

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: Bcc
ACZ Dept: 25
Create Date: 03/13/2017 10:12
Start Date/Time: 3/13/17 10:15a
End Date/Time: 03/13/17 4:30p

SE Q	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG419309CSTD1	NONE					10.00							
2	WG419309CSTD2	NONE					7.00							
3	WG419309CSTD3	NONE					2.05							
4	WG419309ICV	PCN51722					3.99							
5	WG419309PBS	NONE					7	2.000	40	0.1	39.8	0.1		
6	WG419309LCSS	PCN49913									19.8			
7	L35641-01	RC-40V1(22-37)	RALL			Slight					35.4			
8	L35641-01MS	SI141024-1									31.7			
9	L35641-01DUP	NONE									35.6			
10	L35641-02	RC-03V1(20-30)									34.0			
11	L35641-03	RC-07V1(40-55)									33.6			
12	L35641-10	RC-28V1(37-48)									33.8			
13	L35641-11	RC-38V1(52-62)									38.0			
14	L35641-14	SS-16 (GRAB)									~~27.8~~			
15	WG419309CCV	PCN51722					4.03							

28.0
Bcc
3.13.17

Sample	Login Comments
L35641-01	ZIPLOCK || Delivered to Soils.
L35641-02	ZIPLOCK || Delivered to Soils.
L35641-03	ZIPLOCK || Delivered to Soils.
L35641-10	ZIPLOCK || Delivered to Soils.
L35641-11	ZIPLOCK || Delivered to Soils.
L35641-14	BUCKET || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG419309

Date Reported: 15-Mar-17
Run ID: R1512309
Date Analyzed: 13-Mar-17
ICAL Workgroup:
Instrument ID: SOILS

WG419309ICV

Tag: Measured: 3/13/2017 11:35:21 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	3.99	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

WG419309PBS

Tag: Measured: 3/13/2017 12:02:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND		1	U	%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.1	1		N	++					
SREV	NAOH	PREP	39.8	1		mL	++					
SREV	NAOH N	PREP	0.1	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

WG419309LCSS

Tag: Measured: 3/13/2017 12:28:55 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	5.05	1		%	++	0.1	0.5			
SREV	CACO3	REC	102	1		%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.1	1		N	++					
SREV	NAOH	PREP	19.8	1		mL	++					
SREV	NAOH N	PREP	0.1	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L35641-01

Tag: Measured: 3/13/2017 12:55:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	1.2	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Slight	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.1	1		N	++				TB	
NEED	NAOH	PREP	35.4	1		mL	++				TB	
NEED	NAOH N	PREP	0.1	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-01MS

Tag: Measured: 3/13/2017 1:22:29 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	2.08	1		%	++	0.1	0.5			
SREV	CACO3	REC	88	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Slight		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.1	1		N	++					
SREV	NAOH	PREP	31.7	1		mL	++					
SREV	NAOH N	PREP	0.1	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L35641-01DUP

Tag: Measured: 3/13/2017 1:49:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	1.1	1		%	++	0.1	0.5			
SREV	CACO3	RPD	9	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Slight		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.1	1		N	++					
SREV	NAOH	PREP	35.6	1		mL	++					
SREV	NAOH N	PREP	0.1	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L35641-02

Tag: Measured: 3/13/2017 2:16:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	1.5	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Slight	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.1	1		N	++				TB	
NEED	NAOH	PREP	34	1		mL	++				TB	
NEED	NAOH N	PREP	0.1	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-03

Tag: Measured: 3/13/2017 2:42:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	1.6	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Slight	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.1	1		N	++				TB	
NEED	NAOH	PREP	33.6	1		mL	++				TB	
NEED	NAOH N	PREP	0.1	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-10

Tag: Measured: 3/13/2017 3:09:37 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	1.6	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Slight	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.1	1		N	++				TB	
NEED	NAOH	PREP	33.8	1		mL	++				TB	
NEED	NAOH N	PREP	0.1	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-11

Tag: Measured: 3/13/2017 3:36:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	.5	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Slight	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.1	1		N	++				TB	
NEED	NAOH	PREP	38	1		mL	++				TB	
NEED	NAOH N	PREP	0.1	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-14

Tag: Measured: 3/13/2017 4:03:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	3.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Slight	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.1	1		N	++				TB	
NEED	NAOH	PREP	28	1		mL	++				TB	
NEED	NAOH N	PREP	0.1	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

WG419309CCV

Tag: Measured: 3/13/2017 4:29:58 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.03	1		units	++	0.1	0.1			
SREV	PH	REC	101	1		%	++	0.1	0.1			

Neutralization Potential

WG419311

ACZ Laboratories, Inc

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 03/13/2017 10:15
Start Date/Time: 03/13/2017 11:17
End Date/Time: 03/17/2017 12:20

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG419311CSTD1	NONE	RPLL		03/16/17 9:22		10							
2	WG419311CSTD2	NONE	RPLL		03/16/17 14:46		7							
3	WG419311CSTD3	NONE	RPLL		03/16/17 20:09		2.05							
4	WG419311ICV	PCN51722	RPLL		03/17/17 1:32		3.99							
5	WG419311PBS	NONE	RPLL		03/17/17 12:19		7	2	40	0.5	39.9	0.5	.13	
6	WG419311LCSS	PCN49918	RPLL		03/17/17 6:56		7	2	40	0.5	33.2	0.5	8.50	
7	L35641-04	RC-11V1(30-40)	RPLL		03/13/17 11:17	Moderate	7	2	40	0.5	29.7	0.5	12.88	
8	L35641-04MS	SI141024-2	RPLL		03/13/17 22:04	Moderate	7	2	40	0.5	27.6	0.5	15.50	
9	L35641-04DUP	NONE	RPLL		03/13/17 16:40	Moderate	7	2	40	0.5	29.7	0.5	12.88	
10	L35641-05	RC-19V1(42-52)	RPLL		03/14/17 3:27	Moderate	7	2	40	0.5	33.5	0.5	8.13	
11	L35641-06	RC-21V1(27-37)	RPLL		03/14/17 8:51	Moderate	7	2	40	0.5	27.9	0.5	15.13	
12	L35641-07	RC-21V1(107-117)	RPLL		03/14/17 14:14	Moderate	7	2	40	0.5	30.9	0.5	11.38	
13	L35641-08	RC-24V1(27-42)	RPLL		03/14/17 19:38	Moderate	7	2	40	0.5	36.8	0.5	4.00	
14	L35641-09	RC-24V1(102-112)	RPLL		03/15/17 1:01	Moderate	7	2	40	0.5	32.8	0.5	9.00	
15	WG419311CCV1	PCN51722	RPLL		03/15/17 22:35		4.05							
16	L35641-12	RC-01V1(5-15)	RPLL		03/15/17 6:25	Strong	7	2	80	0.5	66.6	0.5	16.75	
17	L35641-13	RC-10V1(5-22)	RPLL		03/15/17 11:48	Strong	7	2	80	0.5	55.9	0.5	30.13	
18	L35641-15	RC-10V1(5-22)DUP	RPLL		03/15/17 17:12	Strong	7	2	80	0.5	55.5	0.5	30.63	
19	WG419311CCV2	PCN51722	RPLL		03/16/17 3:59		4.02							

Report Comments: _____

Internal Comments _____

AREV: BCC 3-17-17
Initials, Date

SREV: CLA 3-17-17
Initials, Date

L35641-1703171631

3/17/2017 12:27:15 PM 30317

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG419311

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 03/13/2017 10:15
Start Date/Time: 03/13/2017 11:17
End Date/Time: 03/17/2017 12:20

Sample	Login Comments
L35641-04	ZIPLOCK || Delivered to Soils.
L35641-05	ZIPLOCK || Delivered to Soils.
L35641-06	ZIPLOCK || Delivered to Soils.
L35641-07	ZIPLOCK || Delivered to Soils.
L35641-08	ZIPLOCK || Delivered to Soils.
L35641-09	ZIPLOCK || Delivered to Soils.
L35641-12	ZIPLOCK || Delivered to Soils.
L35641-13	ZIPLOCK || Delivered to Soils.
L35641-15	ZIPLOCK || Delivered to Soils.

Report Comments: _____

Internal Comments _____

L35641-1703171631

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: BCC
Date: 3-13-17

Approved: CRA
Date: 3-17-17

Analyst: BCC

Workgroup: 419311

Analysis Date: 3/13/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X ✓		
2. Is the %solid or TS attached for dilution factors?			X ✓
3. Were proper volumes of reagents used per final volume?	X ✓		
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)? ROLL	X ✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			X ✓
6. Did the RPD pass?	X ✓		
7. Does all the spike information correlate with each other?	X ✓		
8. Is the appropriate spike in the computer-designated line?	X ✓		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X ✓		
10. Is the standard/reagent information complete and current?	X ✓		
11. Is your instrument calibration passing (and included in the data package if needed)?	X ✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
0.5 N HCl	50437	8-31-17
0.5 N NaOH	52588	7-30-18
Buffer 2	50775	1-31-18
Buffer 7	49402	7-31-17
Buffer 10	51935	6-30-18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG419311

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: BCC
ACZ Dept: 25
Create Date: 03/13/2017 10:15
Start Date/Time: 3/13/17 10:15p
End Date/Time: ~~3/13/17 4:80p~~ 3/17/17 12:20p BCC 3-17-17

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Fizz Test	pH	Sample Weight (g)	HCl (mL)	HCl N (N)	NaOH (mL)	NaOH N (N)	CaCO3 (%)	Comments
1	WG419311CSTD1	NONE					10.00							
2	WG419311CSTD2	NONE					7.00							
3	WG419311CSTD3	NONE					2.05							
4	WG419311ICV	PCN51722					3.99							
5	WG419311PBS	NONE					7	2.000	40	0.5	39.9	0.5		
6	WG419311LCSS	PCN49918									33.2			
7	L35641-04	RC-11V1(30-40)	RPLL			MOD					29.7			
8	L35641-04MS	SI141024-2									27.6			
9	L35641-04DUP	NONE									29.7			
10	L35641-05	RC-19V1(42-52)									33.5			
11	L35641-06	RC-21V1(27-37)									27.9			
12	L35641-07	RC-21V1(107-117)									30.9			
13	L35641-08	RC-24V1(27-42)									36.8			
14	L35641-09	RC-24V1(102-112)									32.8			
15	WG419311CCV1	PCN51722					4.05							
16	L35641-12	RC-01V1(5-15)	RPLL			Strong	7	2.000	80	0.5	66.6	0.5		
17	L35641-13	RC-10V1(5-22)									~~64.8~~			
18	L35641-15	RC-10V1(5-22)DUP									~~49.9~~			
19	WG419311CCV2	PCN51722					4.02							

~~66.1~~ 55.9 BCC 3-17-17

~~55.9~~ 55.5 BCC 3-17-17

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L35641-1703171631

Neutralization Potential

QC List Type: QC-NEUT-POT
QCListMatClass: SOLID
Bench Sheet List: I-NEUT-POT
QC Ref: CSTDX3-PBS-DUP-LCSS
Group ID: SA-G-NEUT-POT
Method Ref: M600 2-78-054 3.2.3
SOP Ref: SOPSO025

WG419311

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 03/13/2017 10:15
Start Date/Time:
End Date/Time:

Sample	Login Comments
L35641-04	ZIPLOCK || Delivered to Soils.
L35641-05	ZIPLOCK || Delivered to Soils.
L35641-06	ZIPLOCK || Delivered to Soils.
L35641-07	ZIPLOCK || Delivered to Soils.
L35641-08	ZIPLOCK || Delivered to Soils.
L35641-09	ZIPLOCK || Delivered to Soils.
L35641-12	ZIPLOCK || Delivered to Soils.
L35641-13	ZIPLOCK || Delivered to Soils.
L35641-15	ZIPLOCK || Delivered to Soils.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L35641-1703171631

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG419311

Date Reported: 17-Mar-17
Run ID: R1512357
Date Analyzed: 13-Mar-17
ICAL Workgroup:
Instrument ID: SOILS

L35641-04

Tag: **Measured:** 3/13/2017 11:17:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	12.9	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	29.7	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-04DUP

Tag: **Measured:** 3/13/2017 4:40:58 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	12.88	1		%	++	0.1	0.5			
SREV	CACO3	RPD	0	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Moderate		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	29.7	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L35641-04MS

Tag: **Measured:** 3/13/2017 10:04:26 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	15.5	1		%	++	0.1	0.5			
SREV	CACO3	REC	87	1		%	++	0.1	0.5			
SREV	FIZZ TEST	TEXT		1			++			Moderate		
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	27.6	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

L35641-05

Tag: **Measured:** 3/14/2017 3:27:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	8.1	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	33.5	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-06

Tag: Measured: 3/14/2017 8:51:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	15.1	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	27.9	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-07

Tag: Measured: 3/14/2017 2:14:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	11.4	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	30.9	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-08

Tag: Measured: 3/14/2017 7:38:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	4.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	36.8	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-09

Tag: Measured: 3/15/2017 1:01:46 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	9.0	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Moderate	TB	
NEED	HCL	PREP	40	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	32.8	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-12

Tag: Measured: 3/15/2017 6:25:14 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	16.8	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Strong	TB	
NEED	HCL	PREP	80	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	66.6	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-13

Tag: Measured: 3/15/2017 11:48:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	30.1	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Strong	TB	
NEED	HCL	PREP	80	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	55.9	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

L35641-15

Tag: Measured: 3/15/2017 5:12:10 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	NEUT-POT	30.6	1		%	++	0.1	0.5		TB	
NEED	FIZZ TEST	TEXT		1			++			Strong	TB	
NEED	HCL	PREP	80	1		mL	++				TB	
NEED	HCL N	PREP	0.5	1		N	++				TB	
NEED	NAOH	PREP	55.5	1		mL	++				TB	
NEED	NAOH N	PREP	0.5	1		N	++				TB	
NEED	PH	PREP	7	1			++				TB	
NEED	WEIGHT, SAMPLE	PREP	2	1		g	++				TB	

WG419311CCV1

Tag: Measured: 3/15/2017 10:35:38 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.05	1		units	++	0.1	0.1			
SREV	PH	REC	101	1		%	++	0.1	0.1			

WG419311CCV2

Tag: Measured: 3/16/2017 3:59:06 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	4.02	1		units	++	0.1	0.1			
SREV	PH	REC	101	1		%	++	0.1	0.1			

WG419311ICV

Tag: Measured: 3/17/2017 1:32:58 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	PH	FOUND	3.99	1		units	++	0.1	0.1			
SREV	PH	REC	100	1		%	++	0.1	0.1			

WG419311LCSS

Tag:

Measured: 3/17/2017 6:56:26 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	8.5	1		%	++	0.1	0.5			
SREV	CACO3	REC	118	1		%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	33.2	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

WG419311PBS

Tag:

Measured: 3/17/2017 12:19:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	CACO3	FOUND	0.13	1	B	%	++	0.1	0.5			
SREV	HCL	PREP	40	1		mL	++					
SREV	HCL N	PREP	0.5	1		N	++					
SREV	NAOH	PREP	39.9	1		mL	++					
SREV	NAOH N	PREP	0.5	1		N	++					
SREV	WEIGHT, SAMPLE	PREP	2	1		g	++					

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG419299

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: sck
ACZ Dept: 25
Create Date: 03/13/2017 8:43
Start Date/Time: 03/13/2017 8:45
End Date/Time: 03/14/2017 14:25

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	S FORMS MOD	Sulfur HCl Residue (%)	Sulfur HNO3 Residue (%)	Sulfur Pyritic Sulfide (%)	Sulfur Organic Residual (%)	Sulfur Sulfate (%)	Total Sulfur minus Sulfate (%)	Sulfur Total (%)	Comments
1	WG419299PBS	NONE	RPLL		03/13/17 8:45	✔	0	0	0	0	0	0	0	
2	WG419299LCSS	PCN52723	RPLL		03/13/17 10:23	✔	0.23	0.44	-0.21	0.44	3.72	0.23	3.95	
3	L35641-01	RC-40V1(22-37)	RPLL		03/13/17 12:02	✔	0.03	0.03	0	0.03	0	0.03	0.03	
4	L35641-01MS	PCN52557	RPLL		03/13/17 13:41	✔	0	0	0	0	1.23	0	1.23	
5	L35641-01DUP	NONE	RPLL		03/13/17 15:20	✔	0.03	0.03	0	0.03	0.01	0.03	0.04	
6	L35641-02	RC-03V1(20-30)	RPLL		03/13/17 16:59	✔	0.17	0.02	0.15	0.02	0.06	0.17	0.23	
7	L35641-03	RC-07V1(40-55)	RPLL		03/13/17 18:38	✔	0.02	0.02	0	0.02	0.01	0.02	0.03	
8	L35641-04	RC-11V1(30-40)	RPLL		03/13/17 20:17	✔	1.01	0.04	0.97	0.04	0.03	1.01	1.04	
9	L35641-05	RC-19V1(42-52)	RPLL		03/13/17 21:56	✔	0.02	0.02	0	0.02	0	0.02	0.02	
10	L35641-06	RC-21V1(27-37)	RPLL		03/13/17 23:34	✔	1.63	0.06	1.57	0.06	0.02	1.63	1.65	
11	L35641-07	RC-21V1(107-117)	RPLL		03/14/17 1:13	✔	1.17	0.06	1.11	0.06	0.07	1.17	1.24	
12	L35641-08	RC-24V1(27-42)	RPLL		03/14/17 2:52	✔	0.03	0.02	0.01	0.02	0.01	0.03	0.04	
13	L35641-09	RC-24V1(102-112)	RPLL		03/14/17 4:31	✔	3.08	0.13	2.95	0.13	0	3.06	3.06	
14	L35641-10	RC-28V1(37-48)	RPLL		03/14/17 6:10	✔	0.02	0.02	0	0.02	0.01	0.02	0.03	
15	L35641-11	RC-38V1(52-62)	RPLL		03/14/17 7:49	✔	0.03	0	0.03	0	0.03	0.03	0.06	
16	L35641-12	RC-01V1(5-15)	RPLL		03/14/17 9:28	✔	0	0	0	0	0	0	0	
17	L35641-13	RC-10V1(5-22)	RPLL		03/14/17 11:07	✔	0	0	0	0	0	0	0	
18	L35641-14	SS-16 (GRAB)	RPLL		03/14/17 12:46	✔	0	0	0	0	0	0	0	
19	L35641-15	RC-10V1(5-22)DUP	RPLL		03/14/17 14:24	✔	0	0	0	0	0	0	0	

Report Comments: _____

Internal Comments _____

AREV: SCL 3/15/17
Initials, Date

SREV: GRA 3-16-17
Initials, Date

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG419299

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: sck
ACZ Dept: 25
Create Date: 03/13/2017 8:43
Start Date/Time: 03/13/2017 8:45
End Date/Time: 03/14/2017 14:25

Sample	Login Comments
L35641-01	ZIPLOCK || Delivered to Soils.
L35641-02	ZIPLOCK || Delivered to Soils.
L35641-03	ZIPLOCK || Delivered to Soils.
L35641-04	ZIPLOCK || Delivered to Soils.
L35641-05	ZIPLOCK || Delivered to Soils.
L35641-06	ZIPLOCK || Delivered to Soils.
L35641-07	ZIPLOCK || Delivered to Soils.
L35641-08	ZIPLOCK || Delivered to Soils.
L35641-09	ZIPLOCK || Delivered to Soils.
L35641-10	ZIPLOCK || Delivered to Soils.
L35641-11	ZIPLOCK || Delivered to Soils.
L35641-12	ZIPLOCK || Delivered to Soils.
L35641-13	ZIPLOCK || Delivered to Soils.
L35641-14	BUCKET || Delivered to Soils.
L35641-15	ZIPLOCK || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: SCK
Date: 3/14/17 SCK 3/15/17

Approved: GRA
Date: 3-15-17

Analyst: SCK

Workgroup: 419299

Analysis Date: 3/14/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X		
2. Is the %solid or TS attached for dilution factors?			X
3. Were proper volumes of reagents used per final volume?			X
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	X		
5.Were the dilution factor calculation checked (final volume, weight, %solid)?			X
6. Did the RPD pass?	X		
7. Does all the spike information correlate with each other?	X		
8. Is the appropriate spike in the computer-designated line?	X		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X		
10. Is the standard/reagent information complete and current?	X		
11. Is your instrument calibration passing (and included in the data package if needed)?	X		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
2:3 HCl	SI 170310-1	3/10/18
1:1 HNO3	SI 170301-2	3/1/18
0.1M AgNO3	SI 161118-2	11/18/17
Nessler Reagent	PCN 52122	8/30/17

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
High Sulfur	CALIBRATE	0.2500	soils/ore	2/13/2017 10:29:57 AM	32.769	-0.0067011	A02
High Sulfur	CALIBRATE	0.3500	soils/ore	2/13/2017 10:32:54 AM	33.042	-0.0058605	A03
High Sulfur	CALIBRATE	0.1500	soils/ore	2/13/2017 10:39:38 AM	32.575	-0.0044616	A10
502-813	CALIBRATE	0.2500	soils/ore	2/13/2017 10:49:38 AM	1.3166	1.0638	A05
502-813	CALIBRATE	0.3500	soils/ore	2/13/2017 10:53:50 AM	1.3296	1.0662	A06
502-813	CALIBRATE	0.1500	soils/ore	2/13/2017 10:59:45 AM	1.2751	1.1066	A01
502-814	CALIBRATE	0.1500	soils/ore	2/13/2017 11:04:20 AM	0.29839	22.643	A07
502-814	CALIBRATE	0.2500	soils/ore	2/13/2017 11:07:15 AM	0.32598	22.437	A08
502-814	CALIBRATE	0.3500	soils/ore	2/13/2017 11:10:26 AM	0.34512	22.675	A09

Element	Average	Std. Deviation	RSD	Count
Mass	0.2500	0.09	34.64	9
Sulfur %	11.475	15.9962	139.4	9
Carbon %	7.8859	11.0342	139.9	9

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
502-813	CALCHK	0.2060	soils/ore	3/14/2017 9:36:46 AM	1.3822	1.0491	A04
LCSS	CALCHK	0.2040	soils/ore	3/14/2017 9:41:41 AM	4.1468	3.6688	A05
High Sulfur	CALCHK	0.2060	soils/ore	3/14/2017 9:49:21 AM	32.307	-0.010452	A01
502-814	CALCHK	0.2060	soils/ore	3/14/2017 9:52:13 AM	0.28795	22.568	A02
Blank	CALCHK	0.1990	soils/ore	3/14/2017 9:55:13 AM	0.00013180	-0.0038594	A03
LCSS	CALCHK	0.2040	soils/ore	3/14/2017 12:19:59 PM	3.9501	3.5022	A07
Blank	CALCHK	0.1980	soils/ore	3/14/2017 12:21:59 PM	-0.00043049	-0.020512	A08
LCSS	ST	0.1980	soils/ore	3/14/2017 12:26:08 PM	3.9533	3.4304	A09
L35641-01	ST	0.2040	soils/ore	3/14/2017 12:29:41 PM	0.033815	1.0123	A10
L35641-01MS	ST	0.2000	soils/ore	3/14/2017 12:33:26 PM	1.2327	2.0389	B01
L35641-01DUP	ST	0.2050	soils/ore	3/14/2017 12:36:55 PM	0.035054	1.0077	B02
L35641-02	ST	0.2080	soils/ore	3/14/2017 12:41:06 PM	0.22835	0.73959	B03
L35641-03	ST	0.2020	soils/ore	3/14/2017 12:44:37 PM	0.027176	0.76974	B04
L35641-04	ST	0.1980	soils/ore	3/14/2017 12:47:48 PM	1.0373	2.7543	B05
L35641-05	ST	0.2050	soils/ore	3/14/2017 12:51:00 PM	0.020557	1.6249	B06
L35641-06	ST	0.2060	soils/ore	3/14/2017 12:58:09 PM	1.6514	3.4874	B07
L35641-07	ST	0.2020	soils/ore	3/14/2017 1:01:21 PM	1.2441	3.2112	B08
L35641-08	ST	0.2100	soils/ore	3/14/2017 1:04:17 PM	0.038320	1.3669	B09
L35641-09	ST	0.1930	soils/ore	3/14/2017 1:07:28 PM	3.0633	3.3963	B10
L35641-10	ST	0.2010	soils/ore	3/14/2017 1:10:24 PM	0.026662	0.91442	C01
L35641-11	ST	0.2040	soils/ore	3/14/2017 1:16:37 PM	0.057217	0.34316	C02
L35641-12	ST	0.1950	soils/ore	3/14/2017 1:19:49 PM	0.0068030	1.7394	C03
L35641-13	ST	0.1950	soils/ore	3/14/2017 1:22:40 PM	0.0086989	1.8494	C04
L35641-14	ST	0.2080	soils/ore	3/14/2017 1:25:51 PM	0.0048189	0.24064	C05
L35641-15	ST	0.2020	soils/ore	3/14/2017 1:28:41 PM	0.00029869	4.1671	C06
LCSS	CALCHK	0.2080	soils/ore	3/14/2017 1:31:52 PM	3.9796	3.5663	C07
Blank	CALCHK	0.2010	soils/ore	3/14/2017 1:34:41 PM	-0.0047132	-0.022189	C08

Element	Average	Std. Deviation	RSD	Count
Mass	0.2025	0.004	2.176	27
Sulfur %	2.1748	6.19746	285.0	27
Carbon %	2.5330	4.23205	167.1	27

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
LCSS	CALCHK	0.1950	soils/ore	3/14/2017 11:32:27 AM	3.6778	3.5732	D08
Blank	CALCHK	0.2030	soils/ore	3/14/2017 11:34:26 AM	-0.0011252	-0.021123	D09
LCSS	HCl	0.2020	soils/ore	3/14/2017 11:36:48 AM	0.22965	3.2654	D10
L35641-01	HCl	0.2040	soils/ore	3/14/2017 11:39:00 AM	0.032296	1.0203	E01
L35641-01DUP	HCl	0.2050	soils/ore	3/14/2017 11:40:56 AM	0.031869	1.0368	E02
L35641-02	HCl	0.1940	soils/ore	3/14/2017 11:45:07 AM	0.16588	0.83005	E03
L35641-03	HCl	0.2010	soils/ore	3/14/2017 11:47:18 AM	0.019838	0.86966	E04
L35641-04	HCl	0.1940	soils/ore	3/14/2017 11:49:29 AM	1.0073	1.5829	E05
L35641-05	HCl	0.1980	soils/ore	3/14/2017 11:51:40 AM	0.016053	1.0020	E06
L35641-06	HCl	0.2030	soils/ore	3/14/2017 11:53:52 AM	1.6326	1.9460	E07
L35641-07	HCl	0.1930	soils/ore	3/14/2017 11:56:15 AM	1.1716	2.0186	E08
L35641-08	HCl	0.2070	soils/ore	3/14/2017 11:58:26 AM	0.034142	1.1871	E09
L35641-09	HCl	0.2080	soils/ore	3/14/2017 12:00:45 PM	3.0754	2.6057	E10
L35641-10	HCl	0.2050	soils/ore	3/14/2017 12:02:56 PM	0.022557	0.95682	A01
L35641-11	HCl	0.2040	soils/ore	3/14/2017 12:09:07 PM	0.031337	0.40719	A02
L35641-12	HCl	0.2070	soils/ore	3/14/2017 12:11:04 PM	0.0052413	0.19233	A03
L35641-13	HCl	0.1930	soils/ore	3/14/2017 12:13:15 PM	0.0022116	0.39555	A04
L35641-14	HCl	0.1960	soils/ore	3/14/2017 12:15:09 PM	0.00057247	0.27432	A05
L35641-15	HCl	0.2030	soils/ore	3/14/2017 12:17:20 PM	0.0023010	0.18778	A06
LCSS	CALCHK	0.2040	soils/ore	3/14/2017 12:19:59 PM	3.9501	3.5022	A07
Blank	CALCHK	0.1980	soils/ore	3/14/2017 12:21:59 PM	-0.00043049	-0.020512	A08

Element	Average	Std. Deviation	RSD	Count
Mass	0.2008	0.005	2.483	21
Sulfur %	0.71939	1.28176	178.2	21
Carbon %	1.2768	1.13974	89.27	21

SC632

Name	Description	Mass	Method	Analysis Date	Sulfur %	Carbon %	Location
LCSS	CALCHK	0.2080	soils/ore	3/14/2017 1:31:52 PM	3.9796	3.5663	C07
Blank	CALCHK	0.2010	soils/ore	3/14/2017 1:34:41 PM	-0.0047132	-0.022189	C08
LCSS	HNO3	0.1920	soils/ore	3/14/2017 1:40:43 PM	0.43637	3.0601	C09
L35641-01	HNO3	0.1980	soils/ore	3/14/2017 1:42:54 PM	0.028383	0.96057	C10
L35641-01DUP	HNO3	0.1980	soils/ore	3/14/2017 1:44:49 PM	0.028319	0.95500	D01
L35641-02	HNO3	0.2020	soils/ore	3/14/2017 1:47:01 PM	0.018478	0.69497	D02
L35641-03	HNO3	0.2070	soils/ore	3/14/2017 1:49:12 PM	0.015726	0.73717	D03
L35641-04	HNO3	0.2050	soils/ore	3/14/2017 1:51:09 PM	0.037646	1.3682	D04
L35641-05	HNO3	0.1930	soils/ore	3/14/2017 1:53:20 PM	0.015435	0.85495	D05
L35641-06	HNO3	0.2000	soils/ore	3/14/2017 1:55:13 PM	0.062214	1.8472	D06
L35641-07	HNO3	0.2080	soils/ore	3/14/2017 1:57:25 PM	0.058829	1.9110	D07
L35641-08	HNO3	0.2050	soils/ore	3/14/2017 1:59:20 PM	0.020554	1.0907	D08
L35641-09	HNO3	0.1920	soils/ore	3/14/2017 2:01:31 PM	0.12507	2.5058	D09
L35641-10	HNO3	0.1910	soils/ore	3/14/2017 2:03:28 PM	0.018139	0.87557	D10
L35641-11	HNO3	0.1930	soils/ore	3/14/2017 2:09:05 PM	0.0099922	0.34563	E01
L35641-12	HNO3	0.1900	soils/ore	3/14/2017 2:11:16 PM	0.00095724	0.15769	E02
L35641-13	HNO3	0.1930	soils/ore	3/14/2017 2:13:10 PM	0.0031633	0.18730	E03
L35641-14	HNO3	0.1990	soils/ore	3/14/2017 2:15:21 PM	0.0026532	0.15100	E04
L35641-15	HNO3	0.1980	soils/ore	3/14/2017 2:17:13 PM	0.0024073	0.095892	E05
LCSS	CALCHK	0.2030	soils/ore	3/14/2017 2:20:02 PM	3.9723	3.5106	E06
Blank	CALCHK	0.1960	soils/ore	3/14/2017 2:22:02 PM	-0.0020852	-0.020355	E07

Element	Average	Std. Deviation	RSD	Count
Mass	0.1987	0.006	2.954	21
Sulfur %	0.42045	1.18580	282.0	21
Carbon %	1.1825	1.14054	96.45	21

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG419299

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 03/13/2017 8:43
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	S FORMS MOD	Sulfur HCl Residue (%)	Sulfur HNO3 Residue (%)	Sulfur Pyritic Sulfide (%)	Sulfur Organic Residual (%)	Sulfur Sulfate (%)	Total Sulfur minus Sulfate (%)	Sulfur Total (%)	Comments
1	WG419299PBS	NONE				✓	—	—						
2	WG419299LCSS	PCN52723				✓	0.202	0.192						
3	L35641-01 ✓	RC-40V1(22-37)				✓	0.204	0.198						
4	L35641-01MS	PCN52557				✓	—	—						
5	L35641-01DUP ✓	NONE				✓	0.205	0.198						
6	L35641-02 ✓	RC-03V1(20-30)				✓	0.194	0.202						
7	L35641-03 ✓	RC-07V1(40-55)				✓	0.201	0.207						
8	L35641-04 ✓	RC-11V1(30-40)				✓	0.194	0.205						
9	L35641-05 ✓	RC-19V1(42-52)				✓	0.198	0.193						
10	L35641-06 ✓	RC-21V1(27-37)				✓	0.203	0.200						
11	L35641-07 ✓	RC-21V1(107-117)				✓	0.193	0.208						
12	L35641-08 ✓	RC-24V1(27-42)				✓	0.207	0.205						
13	L35641-09 ✓	RC-24V1(102-112)				✓	0.208	0.192						
14	L35641-10 ✓	RC-28V1(37-48)				✓	0.205	0.191						
15	L35641-11 ✓	RC-38V1(52-62)				✓	0.204	0.193						
16	L35641-12 ✓	RC-01V1(5-15)				✓	0.207	0.190						
17	L35641-13 ✓	RC-10V1(5-22)				✓	0.193	0.193						
18	L35641-14	SS-16 (GRAB)				✓	0.196	0.199						
19	L35641-15	RC-10V1(5-22)DUP				✓	0.203	0.198						

Report Comments: Re analysis of 41-13 + 41-15 not required as no ~~solp~~ sulfur was present in either Sx. or a 3-16-17

Internal Comments

AREV: _____
Initials, Date

SREV: _____
Initials, Date

L35641-1703171631

Sulfur forms

QC List Type: QC-S-FORMS
QCListMatClass: SOLID
Bench Sheet List: I-S-FORMS-MOD
QC Ref: PBS-LCS-DUP-MS
Group ID: SA-G-S-FORMS-MOD
Method Ref:
SOP Ref: SOPSO23

WG419299

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 03/13/2017 8:43
Start Date/Time:
End Date/Time:

Sample	Login Comments
L35641-01	ZIPLOCK || Delivered to Soils.
L35641-02	ZIPLOCK || Delivered to Soils.
L35641-03	ZIPLOCK || Delivered to Soils.
L35641-04	ZIPLOCK || Delivered to Soils.
L35641-05	ZIPLOCK || Delivered to Soils.
L35641-06	ZIPLOCK || Delivered to Soils.
L35641-07	ZIPLOCK || Delivered to Soils.
L35641-08	ZIPLOCK || Delivered to Soils.
L35641-09	ZIPLOCK || Delivered to Soils.
L35641-10	ZIPLOCK || Delivered to Soils.
L35641-11	ZIPLOCK || Delivered to Soils.
L35641-12	ZIPLOCK || Delivered to Soils.
L35641-13	ZIPLOCK || Delivered to Soils.
L35641-14	BUCKET || Delivered to Soils.
L35641-15	ZIPLOCK || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG419299

Date Reported: 16-Mar-17
Run ID: R1512870
Date Analyzed: 13-Mar-17
ICAL Workgroup:
Instrument ID: SOILS

WG419299PBS

Tag:

Measured: 3/13/2017 8:45:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR TOTAL	FOUND		1	U	%	++	0.01	0.1			

WG419299LCSS

Tag:

Measured: 3/13/2017 10:23:53 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0.23	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0.44	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	PREP	0.44	1		%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	PREP	-0.21	1		%	++	0.01	0.1			
SREV	SULFUR SULFATE	PREP	3.72	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	FOUND	3.95	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	103	1		%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	PREP	0.23	1		%	++	0.01	0.1			

L35641-01

Tag:

Measured: 3/13/2017 12:02:46 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.03	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.03	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	

L35641-01MS

Tag:

Measured: 3/13/2017 1:41:39 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	PREP	0	1		%	++	0.01	0.1			
SREV	SULFUR SULFATE	PREP	1.23	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	FOUND	1.23	1		%	++	0.01	0.1			
SREV	SULFUR TOTAL	REC	91	1		%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	PREP	0	1		%	++	0.01	0.1			

L35641-01DUP

Tag:

Measured: 3/13/2017 3:20:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	PREP	0.03	1		%	++	0.01	0.1			
SREV	SULFUR HNO3 RESIDUE	PREP	0.03	1		%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	FOUND	0.03	1	B	%	++	0.01	0.1			
SREV	SULFUR ORGANIC RESIDUAL	RPD	0	1		%	++	0.01	0.1		RA	
SREV	SULFUR PYRITIC SULFIDE	FOUND		1	U	%	++	0.01	0.1			
SREV	SULFUR PYRITIC SULFIDE	RPD	0	1		%	++	0.01	0.1		RA	
SREV	SULFUR SULFATE	FOUND	0.01	1	B	%	++	0.01	0.1			
SREV	SULFUR SULFATE	RPD	200	1	B	%	ALRT	0.01	0.1		RA	
SREV	SULFUR TOTAL	FOUND	0.04	1	B	%	++	0.01	0.1			
SREV	SULFUR TOTAL	RPD	29	1	B	%	ALRT	0.01	0.1		RA	
SREV	TOTAL SULFUR MINUS SULFATE	FOUND	0.03	1	B	%	++	0.01	0.1			
SREV	TOTAL SULFUR MINUS SULFATE	RPD	0	1		%	++	0.01	0.1		RA	

L35641-02

Tag:

Measured: 3/13/2017 4:59:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.17	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.15	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.06	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.23	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.17	1		%	++	0.01	0.1		RA TB	

L35641-03

Tag:

Measured: 3/13/2017 6:38:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.01	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	

L35641-04

Tag:

Measured: 3/13/2017 8:17:11 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	1.01	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.04	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.04	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.97	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	1.04	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	1.01	1		%	++	0.01	0.1		RA TB	

L35641-05

Tag: Measured: 3/13/2017 9:56:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	

L35641-06

Tag: Measured: 3/13/2017 11:34:57 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	1.63	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.06	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.06	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	1.57	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	1.65	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	1.63	1		%	++	0.01	0.1		RA TB	

L35641-07

Tag: Measured: 3/14/2017 1:13:50 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	1.17	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.06	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.06	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	1.11	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.07	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	1.24	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	1.17	1		%	++	0.01	0.1		RA TB	

L35641-08

Tag: Measured: 3/14/2017 2:52:43 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.03	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.01	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.01	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.04	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	

L35641-09

Tag: Measured: 3/14/2017 4:31:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	3.08	1		%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.13	1		%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.13	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	2.95	1		%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	3.06	1		%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	3.06	1		%	++	0.01	0.1		RA TB	

L35641-10

Tag: Measured: 3/14/2017 6:10:29 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD	.02	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.01	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.02	1	B	%	++	0.01	0.1		RA TB	

L35641-11

Tag: Measured: 3/14/2017 7:49:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD	.03	1	B	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD	.06	1	B	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD	.03	1	B	%	++	0.01	0.1		RA TB	

L35641-12

Tag: Measured: 3/14/2017 9:28:15 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L35641-13

Tag:

Measured: 3/14/2017 11:07:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L35641-14

Tag:

Measured: 3/14/2017 12:46:01 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

L35641-15

Tag:

Measured: 3/14/2017 2:24:54 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SULFUR HCL RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR HNO3 RESIDUE	RMS-MOD		1	U	%	++	0.01	0.1		TB	
SREV	SULFUR ORGANIC RESIDUAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR PYRITIC SULFIDE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	SULFUR TOTAL	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	
SREV	TOTAL SULFUR MINUS SULFATE	RMS-MOD		1	U	%	++	0.01	0.1		RA TB	

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG418878

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: JJO
ACZ Dept: 20
Create Date: 03/03/2017 13:11
Start Date/Time: 03/03/2017 13:11
End Date/Time: 03/03/2017 15:15

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L35641-01	RC-40V1(22-37)	As Rec			03/03/17 13:11	3/3/2017	
2	L35641-02	RC-03V1(20-30)	As Rec			03/03/17 13:18	3/3/2017	
3	L35641-03	RC-07V1(40-55)	As Rec			03/03/17 13:26	3/3/2017	
4	L35641-04	RC-11V1(30-40)	As Rec			03/03/17 13:34	3/3/2017	
5	L35641-05	RC-19V1(42-52)	As Rec			03/03/17 13:42	3/3/2017	
6	L35641-06	RC-21V1(27-37)	As Rec			03/03/17 13:49	3/3/2017	
7	L35641-07	RC-21V1(107-117)	As Rec			03/03/17 13:57	3/3/2017	
8	L35641-08	RC-24V1(27-42)	As Rec			03/03/17 14:05	3/3/2017	
9	L35641-09	RC-24V1(102-112)	As Rec			03/03/17 14:13	3/3/2017	
10	L35641-10	RC-28V1(37-48)	As Rec			03/03/17 14:20	3/3/2017	
11	L35641-11	RC-38V1(52-62)	As Rec			03/03/17 14:28	3/3/2017	
12	L35641-12	RC-01V1(5-15)	As Rec			03/03/17 14:36	3/3/2017	
13	L35641-13	RC-10V1(5-22)	As Rec			03/03/17 14:44	3/3/2017	
14	L35641-14	SS-16 (GRAB)	As Rec			03/03/17 14:51	3/3/2017	
15	L35641-15	RC-10V1(5-22)DUP	As Rec			03/03/17 14:59	3/3/2017	
16	L35677-02	SAMPLE 2	As Rec	40	SAVE SX	03/03/17 15:07	3/3/2017	
17	L35677-03	SAMPLE 3	As Rec	40	SAVE SX	03/03/17 15:15	3/3/2017	

Report Comments: _____

Internal Comments _____

AREV: JJO 3/3/17
Initials, Date

SREV: CRA 3-5-17
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG418878

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: JJO
ACZ Dept: 20
Create Date: 03/03/2017 13:11
Start Date/Time: 03/03/2017 13:11
End Date/Time: 03/03/2017 15:15

Sample	Login Comments
L35641-01	ZIPLOCK || Delivered to Soils.
L35641-02	ZIPLOCK || Delivered to Soils.
L35641-03	ZIPLOCK || Delivered to Soils.
L35641-04	ZIPLOCK || Delivered to Soils.
L35641-05	ZIPLOCK || Delivered to Soils.
L35641-06	ZIPLOCK || Delivered to Soils.
L35641-07	ZIPLOCK || Delivered to Soils.
L35641-08	ZIPLOCK || Delivered to Soils.
L35641-09	ZIPLOCK || Delivered to Soils.
L35641-10	ZIPLOCK || Delivered to Soils.
L35641-11	ZIPLOCK || Delivered to Soils.
L35641-12	ZIPLOCK || Delivered to Soils.
L35641-13	ZIPLOCK || Delivered to Soils.
L35641-14	BUCKET || Delivered to Soils.
L35641-15	ZIPLOCK || Delivered to Soils.
L35677-02	ZIPLOCK || On the Quarantine shelf.
L35677-03	ZIPLOCK || On the Quarantine shelf.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: JJO
Date: 3/3/17

Approved:
Date:

Analyst: JJO

Workgroup: 418878

Analysis Date: 3/3/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓	✓	
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓	✓	
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓	✓	
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?			✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG418878

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 03/03/2017 13:11
Start Date/Time:
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	ASRECEIVED	Analysis Date	SP AirDry	Comments
1	L35641-01	RC-40V1(22-37)						
2	L35641-02	RC-03V1(20-30)						
3	L35641-03	RC-07V1(40-55)						
4	L35641-04	RC-11V1(30-40)						
5	L35641-05	RC-19V1(42-52)						
6	L35641-06	RC-21V1(27-37)						
7	L35641-07	RC-21V1(107-117)						
8	L35641-08	RC-24V1(27-42)						
9	L35641-09	RC-24V1(102-112)						
10	L35641-10	RC-28V1(37-48)						
11	L35641-11	RC-38V1(52-62)						
12	L35641-12	RC-01V1(5-15)						
13	L35641-13	RC-10V1(5-22)						
14	L35641-14	SS-16 (GRAB)						
15	L35641-15	RC-10V1(5-22)DUP						
16	L35677-02	SAMPLE 2		40	SAVE SX			
17	L35677-03	SAMPLE 3		40	SAVE SX			

Report Comments:

AREV:
Initials, Date

Internal Comments Client ID suggests L35641-15 is a duplicate to L35641-13. Sx's differ in color, grain size, moister content

SREV:
Initials, Date

Air Dry

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-SP-AIRDRY
QC Ref: NOQC
Group ID: SP-G-DRY-AIR
Method Ref: No 1 1972
SOP Ref: SOPSO001

WG418878

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 03/03/2017 13:11
Start Date/Time:
End Date/Time:

Sample	Login Comments
L35641-01	ZIPLOCK || Delivered to Soils.
L35641-02	ZIPLOCK || Delivered to Soils.
L35641-03	ZIPLOCK || Delivered to Soils.
L35641-04	ZIPLOCK || Delivered to Soils.
L35641-05	ZIPLOCK || Delivered to Soils.
L35641-06	ZIPLOCK || Delivered to Soils.
L35641-07	ZIPLOCK || Delivered to Soils.
L35641-08	ZIPLOCK || Delivered to Soils.
L35641-09	ZIPLOCK || Delivered to Soils.
L35641-10	ZIPLOCK || Delivered to Soils.
L35641-11	ZIPLOCK || Delivered to Soils.
L35641-12	ZIPLOCK || Delivered to Soils.
L35641-13	ZIPLOCK || Delivered to Soils.
L35641-14	BUCKET || Delivered to Soils.
L35641-15	ZIPLOCK || Delivered to Soils.
L35677-02	ZIPLOCK || On the Quarantine shelf.
L35677-03	ZIPLOCK || On the Quarantine shelf.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG418878

Date Reported: 05-Mar-17
Run ID: R1509149
Date Analyzed: 03-Mar-17
ICAL Workgroup:
Instrument ID: SOILSPREP

L35641-01

Tag: Measured: 3/3/2017 1:11:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-02

Tag: Measured: 3/3/2017 1:18:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-03

Tag: Measured: 3/3/2017 1:26:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-04

Tag: Measured: 3/3/2017 1:34:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-05

Tag: Measured: 3/3/2017 1:42:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-06

Tag: Measured: 3/3/2017 1:49:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-07

Tag: Measured: 3/3/2017 1:57:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-08

Tag: Measured: 3/3/2017 2:05:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-09

Tag: Measured: 3/3/2017 2:13:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-10

Tag: Measured: 3/3/2017 2:20:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-11 Tag: Measured: 3/3/2017 2:28:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-12 Tag: Measured: 3/3/2017 2:36:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-13 Tag: Measured: 3/3/2017 2:44:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-14 Tag: Measured: 3/3/2017 2:51:45 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35641-15 Tag: Measured: 3/3/2017 2:59:30 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35677-02 Tag: Measured: 3/3/2017 3:07:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

L35677-03 Tag: Measured: 3/3/2017 3:15:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP AIRDRY	DRY-AIR		1			NEED					

Crush Pulverize (Ring & Puck)

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-ICPMS-D-200
QC Ref: NOQC
Group ID: SP-G-RPLL
Method Ref: 600/2-78-054 ?3.1.3
SOP Ref: SOPSO001

WG419226

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: DBT
ACZ Dept: 20
Create Date: 03/10/2017 9:17
Start Date/Time: 03/10/2017 9:30
End Date/Time: 03/10/2017 11:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP CrushPulv	Comments
1	L35641-01	RC-40V1(22-37)	dry		03/10/17 9:30	3/10/2017	
2	L35641-02	RC-03V1(20-30)	dry		03/10/17 9:38	3/10/2017	
3	L35641-03	RC-07V1(40-55)	dry		03/10/17 9:47	3/10/2017	
4	L35641-04	RC-11V1(30-40)	dry		03/10/17 9:55	3/10/2017	
5	L35641-05	RC-19V1(42-52)	dry		03/10/17 10:04	3/10/2017	
6	L35641-06	RC-21V1(27-37)	dry		03/10/17 10:12	3/10/2017	
7	L35641-07	RC-21V1(107-117)	dry		03/10/17 10:21	3/10/2017	
8	L35641-08	RC-24V1(27-42)	dry		03/10/17 10:29	3/10/2017	
9	L35641-09	RC-24V1(102-112)	dry		03/10/17 10:38	3/10/2017	
10	L35641-10	RC-28V1(37-48)	dry		03/10/17 10:47	3/10/2017	
11	L35641-11	RC-38V1(52-62)	dry		03/10/17 10:55	3/10/2017	
12	L35641-12	RC-01V1(5-15)	dry		03/10/17 11:04	3/10/2017	
13	L35641-13	RC-10V1(5-22)	dry		03/10/17 11:12	3/10/2017	
14	L35641-14	SS-16 (GRAB)	dry		03/10/17 11:21	3/10/2017	
15	L35641-15	RC-10V1(5-22)DUP	dry		03/10/17 11:29	3/10/2017	

Report Comments:

Internal Comments

AREV: DBT, 3/10/17
Initials, Date

SREV: 3/10/17
Initials, Date

L35641-1703171631

3/10/2017 11:38:59 AM 30317

Crush Pulverize (Ring & Puck)

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-ICPMS-D-200
QC Ref: NOQC
Group ID: SP-G-RPLL
Method Ref: 600/2-78-054 ?3.1.3
SOP Ref: SOPSO001

WG419226

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: DBT
ACZ Dept: 20
Create Date: 03/10/2017 9:17
Start Date/Time: 03/10/2017 9:30
End Date/Time: 03/10/2017 11:30

Sample	Login Comments
L35641-01	ZIPLOCK || Delivered to Soils.
L35641-02	ZIPLOCK || Delivered to Soils.
L35641-03	ZIPLOCK || Delivered to Soils.
L35641-04	ZIPLOCK || Delivered to Soils.
L35641-05	ZIPLOCK || Delivered to Soils.
L35641-06	ZIPLOCK || Delivered to Soils.
L35641-07	ZIPLOCK || Delivered to Soils.
L35641-08	ZIPLOCK || Delivered to Soils.
L35641-09	ZIPLOCK || Delivered to Soils.
L35641-10	ZIPLOCK || Delivered to Soils.
L35641-11	ZIPLOCK || Delivered to Soils.
L35641-12	ZIPLOCK || Delivered to Soils.
L35641-13	ZIPLOCK || Delivered to Soils.
L35641-14	BUCKET || Delivered to Soils.
L35641-15	ZIPLOCK || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: DBT
Date: 3/10/17

Approved: RPD
Date: 3/10/17

Analyst: DBT

Workgroup: WG 419226

Analysis Date: 3/10/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?			✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?			✓
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?			✓
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?			

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Crush Pulverize (Ring & Puck)

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-ICPMS-D-200
QC Ref: NOQC
Group ID: SP-G-RPLL
Method Ref: 600/2-78-054 ?3.1.3
SOP Ref: SOPSO001

WG419226

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 03/10/2017 9:17
Start Date/Time: 3-11-17 9:30
End Date/Time: 3-10-17 1:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	SP CrushPulv	Comments
1	L35641-01	RC-40V1(22-37)					
2	L35641-02	RC-03V1(20-30)					
3	L35641-03	RC-07V1(40-55)					
4	L35641-04	RC-11V1(30-40)					
5	L35641-05	RC-19V1(42-52)					
6	L35641-06	RC-21V1(27-37)					
7	L35641-07	RC-21V1(107-117)					
8	L35641-08	RC-24V1(27-42)					
9	L35641-09	RC-24V1(102-112)					
10	L35641-10	RC-28V1(37-48)					
11	L35641-11	RC-38V1(52-62)					
12	L35641-12	RC-01V1(5-15)					
13	L35641-13	RC-10V1(5-22)					
14	L35641-14	SS-16 (GRAB)					
15	L35641-15	RC-10V1(5-22)DUP					

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Crush Pulverize (Ring & Puck)

QC List Type: I-SP-AIRDRY
QCListMatClass: SOLID
Bench Sheet List: I-ICPMS-D-200
QC Ref: NOQC
Group ID: SP-G-RPLL
Method Ref: 600/2-78-054 ?3.1.3
SOP Ref: SOPSO001

WG419226

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 03/10/2017 9:17
Start Date/Time:
End Date/Time:

Sample	Login Comments
L35641-01	ZIPLOCK || Delivered to Soils.
L35641-02	ZIPLOCK || Delivered to Soils.
L35641-03	ZIPLOCK || Delivered to Soils.
L35641-04	ZIPLOCK || Delivered to Soils.
L35641-05	ZIPLOCK || Delivered to Soils.
L35641-06	ZIPLOCK || Delivered to Soils.
L35641-07	ZIPLOCK || Delivered to Soils.
L35641-08	ZIPLOCK || Delivered to Soils.
L35641-09	ZIPLOCK || Delivered to Soils.
L35641-10	ZIPLOCK || Delivered to Soils.
L35641-11	ZIPLOCK || Delivered to Soils.
L35641-12	ZIPLOCK || Delivered to Soils.
L35641-13	ZIPLOCK || Delivered to Soils.
L35641-14	BUCKET || Delivered to Soils.
L35641-15	ZIPLOCK || Delivered to Soils.

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG419226

Date Reported: 10-Mar-17
Run ID: R1511629
Date Analyzed: 10-Mar-17
ICAL Workgroup:
Instrument ID: SOILSPREP

L35641-01

Tag: Measured: 3/10/2017 9:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-02

Tag: Measured: 3/10/2017 9:38:34 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-03

Tag: Measured: 3/10/2017 9:47:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-04

Tag: Measured: 3/10/2017 9:55:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-05

Tag: Measured: 3/10/2017 10:04:16 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-06

Tag: Measured: 3/10/2017 10:12:50 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-07

Tag: Measured: 3/10/2017 10:21:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-08

Tag: Measured: 3/10/2017 10:29:58 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-09

Tag: Measured: 3/10/2017 10:38:32 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-10

Tag: Measured: 3/10/2017 10:47:06 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-11

Tag: Measured: 3/10/2017 10:55:40 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-12

Tag: Measured: 3/10/2017 11:04:14 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-13

Tag: Measured: 3/10/2017 11:12:48 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-14

Tag: Measured: 3/10/2017 11:21:22 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

L35641-15

Tag: Measured: 3/10/2017 11:29:56 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SP CRUSHPULV	SP-RPLL		1			NEED					

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L35641

Soil Preparation

WG418878 **Air Dry**

Sample	Date	SCN	SP AIRDRY
L35641-01	03/03/17 13:11		X
L35641-02	03/03/17 13:18		X
L35641-03	03/03/17 13:26		X
L35641-04	03/03/17 13:34		X
L35641-05	03/03/17 13:42		X
L35641-06	03/03/17 13:49		X
L35641-07	03/03/17 13:57		X
L35641-08	03/03/17 14:05		X
L35641-09	03/03/17 14:13		X
L35641-10	03/03/17 14:20		X
L35641-11	03/03/17 14:28		X
L35641-12	03/03/17 14:36		X
L35641-13	03/03/17 14:44		X
L35641-14	03/03/17 14:51		X
L35641-15	03/03/17 14:59		X
L35677-02	03/03/17 15:07		X
L35677-03	03/03/17 15:15		X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L35641

Soil Preparation

WG419226 **Crush Pulverize (Ring & Puck)**

Sample	Date	SCN	SP CRUSHPULV
L35641-01	03/10/17 09:30		X
L35641-02	03/10/17 09:38		X
L35641-03	03/10/17 09:47		X
L35641-04	03/10/17 09:55		X
L35641-05	03/10/17 10:04		X
L35641-06	03/10/17 10:12		X
L35641-07	03/10/17 10:21		X
L35641-08	03/10/17 10:29		X
L35641-09	03/10/17 10:38		X
L35641-10	03/10/17 10:47		X
L35641-11	03/10/17 10:55		X
L35641-12	03/10/17 11:04		X
L35641-13	03/10/17 11:12		X
L35641-14	03/10/17 11:21		X
L35641-15	03/10/17 11:29		X

Monsanto Company

Project ID: L35641

Soil Analysis

WG419299 **Sulfur forms**

Sample	Date	SCN	JLFUR HCL RESIDU	LFUR HNO3 RESIDU	R ORGANIC RESI	FUR PYRITIC SULF	SULFUR SULFATE	SULFUR TOTAL	SULFUR MINUS SU
WG419299PBS	03/13/17 08:45							X	
WG419299LCSS	03/13/17 10:23	PCN52723						X	
L35641-01	03/13/17 12:02		X	X	X	X	X	X	X
L35641-01MS	03/13/17 13:41	PCN52557						X	
L35641-01DUP	03/13/17 15:20				X	X	X	X	X
L35641-02	03/13/17 16:59		X	X	X	X	X	X	X
L35641-03	03/13/17 18:38		X	X	X	X	X	X	X
L35641-04	03/13/17 20:17		X	X	X	X	X	X	X
L35641-05	03/13/17 21:56		X	X	X	X	X	X	X
L35641-06	03/13/17 23:34		X	X	X	X	X	X	X
L35641-07	03/14/17 01:13		X	X	X	X	X	X	X
L35641-08	03/14/17 02:52		X	X	X	X	X	X	X
L35641-09	03/14/17 04:31		X	X	X	X	X	X	X
L35641-10	03/14/17 06:10		X	X	X	X	X	X	X
L35641-11	03/14/17 07:49		X	X	X	X	X	X	X
L35641-12	03/14/17 09:28		X	X	X	X	X	X	X
L35641-13	03/14/17 11:07		X	X	X	X	X	X	X
L35641-14	03/14/17 12:46		X	X	X	X	X	X	X
L35641-15	03/14/17 14:24		X	X	X	X	X	X	X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L35641

Soil Analysis

WG419309 **Neutralization Potential**

Sample	Date	SCN	CACO3	FIZZ TEST	PH
WG419309ICV	03/13/17 11:35	PCN51722			X
WG419309PBS	03/13/17 12:02		X		
WG419309LCSS	03/13/17 12:28	PCN49913	X		
L35641-01	03/13/17 12:55		X		
L35641-01MS	03/13/17 13:22	SI141024-1	X	X	
L35641-01DUP	03/13/17 13:49		X	X	
L35641-02	03/13/17 14:16		X		
L35641-03	03/13/17 14:42		X		
L35641-10	03/13/17 15:09		X		
L35641-11	03/13/17 15:36		X		
L35641-14	03/13/17 16:03		X		
WG419309CCV	03/13/17 16:29	PCN51722			X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L35641

Soil Analysis

WG419311 **Neutralization Potential**

Sample	Date	SCN	CACO3	FIZZ TEST	PH
L35641-04	03/13/17 11:17		X		
L35641-04DUP	03/13/17 16:40		X	X	
L35641-04MS	03/13/17 22:04	SI141024-2	X	X	
L35641-05	03/14/17 03:27		X		
L35641-06	03/14/17 08:51		X		
L35641-07	03/14/17 14:14		X		
L35641-08	03/14/17 19:38		X		
L35641-09	03/15/17 01:01		X		
L35641-12	03/15/17 06:25		X		
L35641-13	03/15/17 11:48		X		
L35641-15	03/15/17 17:12		X		
WG419311CCV1	03/15/17 22:35	PCN51722			X
WG419311CCV2	03/16/17 03:59	PCN51722			X
WG419311ICV	03/17/17 01:32	PCN51722			X
WG419311LCSS	03/17/17 06:56	PCN49918	X		
WG419311PBS	03/17/17 12:19		X		

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID: L35641
Date Received: 02/13/2017 09:54
Received By:
Date Printed: 2/20/2017

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	X		

A change was made in the ID Lines 2-10 on COC 1 section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?		X	

L35641-03 Container B1808266 (OTHER): The ID on the sample label is RC-07V2 (40-55), and on the COC the ID is RC-07V1 (40-55). The sample ID was entered per the COC.

L35641-04 Container B1808267 (OTHER): The ID on the sample label is RC-11V1 (42-47) (57-62_, and on the COC the ID is RC-11V1 (30-40). The sample ID was entered per the COC.

	YES	NO	NA
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

The 'Relinquished By' field on the COC was not completed. The project manager is contacting the client.

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?

Monsanto Company
4512184569

ACZ Project ID: L35641
Date Received: 02/13/2017 09:54
Received By:
Date Printed: 2/20/2017

NA25542	5.1	NA	14	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. C35641

2773 Downhill Drive, Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1863 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc
E-mail: leah@wolfmartininc.com, Rbenedetti@strata
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1863 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]
If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: David Carp Sampler's Site Information: State Idaho Zip code 83276 Time Zone 7:00
Sampler's Signature: David Carpenter

PROJECT INFORMATION

Quote #: Whole-Rock - A&A
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

Analysis requested (attach list if more space is needed)

SAMPLE IDENTIFICATION	DATE-TIME	Matrix	# of Containers	Cr and non-chrome (return sample to lab)	Chromate sample	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RC-40V1 (22-37)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
SB-01_02GT (1.5-0.5)	1-31-17, 7:35AM	SO	1 ea	X	X	X	X				
SB-07GT (4-21)	1-31-17, 7:35AM	SO	1 ea	X	X	X	X				
SB-03_TP-3 (1-5)	1-31-17, 7:35AM	SO	1 ea	X	X	X	X				
TP-6 (7-10)	1-31-17, 7:35AM	SO	1 ea	X	X	X	X				
TP-8 (3.5-13)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
TP-9 (7-14)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
TP-12 (7-9)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
TP-14 (3-7)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
TP-20 (12-14)	1-31-17, 7:35AM	SO	1 ea	X	X		X				

Matrix: SW (Surface Water) GW (Ground Water) WW (Waste Water) DW (Drinking Water) SL (Sludge) SO (Soil) OL (Oil) Other (Specify)

REMARKS

Lists #1 and #2 of required testing for all samples are attached

Please refer to ACZ's terms & conditions located on the reverse side of this COC

RELINQUISHED BY	DATE-TIME	RECEIVED BY	DATE-TIME
		WL	2-15-17 0950

FRMAD050.03.14.13 White - Return with sample Yellow - Retain for your records

L35641 Chain of Custody

ACZ Laboratories, Inc. L35641

CHAIN of CUSTODY

2773 Downhill Drive, Steamboat Springs, CO 80487, (800) 334-5493

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc
E-mail: leah@wolfmartininc.com, Rbenedetti@st
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

NOTE: If no ACZ will contact client for further instructions. If neither YES nor NO is checked, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado

Sampler's Name: David Carp? Sampler's Site Information State: Idaho Zip code: 83276 Time Zone: 7:00

*Sampler's Signature: David Carpenter

I attest to the authenticity and validity of this sample. I understand that falsifying the sample location, date or time may be punishable by State Law.

PROJECT INFORMATION

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

SAMPLE IDENTIFICATION	DATE-TIME	Matrix	# of Containers	Grab and Split Sample (Return sample receipt)	Grab Sample	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RC-09V1 (20-30)	1-31-17, 7:35AM	SO	1 ea	X	X	X	X				
RC-07V1 (40-55)	1-31-17, 7:35AM	SO	1 ea	X	X	X	X				
RC-11V1 (30-40)	1-31-17, 7:35AM	SO	1 ea	X	X	X	X				
RC-19V1 (42-52)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
RC-21V1 (27-37)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
RC-21V1 (107-117)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
RC-24V1 (27-42)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
RC-24V1 (102-112)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
RC-28V1 (37-48)	1-31-17, 7:35AM	SO	1 ea	X	X		X				
RC-38V1 (52-62)	1-31-17, 7:35AM	SO	1 ea	X	X		X				

Matrix: SW (Surface Water), GW (Ground Water), WW (Waste Water), DW (Drinking Water), SL (Sludge), SO (Soil), OIL (Oil), Other (Specify)

REMARKS

Lists #1 and #2 of required testing for all samples are attached

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY	DATE-TIME	RECEIVED BY	DATE-TIME
		WC	2/1/17 0850

FRM-D050 03/04/13 White - Return with sample Yellow - Retain for your records

2

ACZ Laboratories, Inc. L35641

2773 Downhill Drive, Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc
E-mail: leah@wolfmartininc.com, Rbenedetti@st
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]
If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: David Carr [X] Sampler's Site Information State: Idaho Zip code: 83276 Time Zone: 7:00
*Sampler's Signature: David Carpenier

PROJECT INFORMATION — ANALYSIS REQUESTED (Attach list if more space needed)

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

SAMPLE IDENTIFICATION	DATE-TIME	Matrix	# of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RC-01V1 (5-15)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-10V1 (5-22)	1-31-17 7:35AM	SO	1 ea	X	X		X				
(1) 5 gal pail of alluvium	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
SS-116 (grab)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-10V1 (5-22)a	1-31-17 7:35AM	SO	1 ea	X	X		X				

Matrix: SW (Surface Water) GW (Ground Water) WW (Waste Water) DW (Drinking Water) SL (Sludge) SO (Soil) OL (Oil) Other (Specify)

REMARKS

Lists #1 and #2 of required testing for all samples are attached.

Please refer to ACZ's terms & conditions located on the reverse side of this COC

RELINQUISHED BY:	DATE-TIME	RECEIVED BY:	DATE-TIME
		HR	2/1/17 0950

FRMAD050 03.14.13 White - Return with sample Yellow - Retain for your records

3

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

March 28, 2017

Report to:
Molly Prickett
Monsanto Company
1853 Hwy 34 N
Soda Springs, ID 83276

cc: Leah Wolf Martin, Rocky Benedetti

Bill to:
Molly Pricket
Monsanto Company
1853 Highway 34
Soda Springs, ID 83276

Project ID: 4512184569
ACZ Project ID: L36109

Molly Prickett:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 20, 2017. This project has been assigned to ACZ's project number, L36109. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L36109. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 27, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

MONSANTO COMPANY

Level IV Data Package – L36109
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ACZ Laboratories, Inc.
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Sample Summary

ACZ Project ID: ***L36109***

SAMPLE ID	LAB NO.	SAMPLE DATE	SAMPLE TIME
RC-40V1(22-37)	L36109-01	1/31/2017	7:35
RC-03V1(20-30)	L36109-02	1/31/2017	7:35
RC-07V1(40-55)	L36109-03	1/31/2017	7:35
RC-11V1(30-40)	L36109-04	1/31/2017	7:35
RC-19V1(42-52)	L36109-05	1/31/2017	7:35
RC-21V1(27-37)	L36109-06	1/31/2017	7:35
RC-21V1(107-117)	L36109-07	1/31/2017	7:35
RC-24V1(27-42)	L36109-08	1/31/2017	7:35
RC-24V1(102-112)	L36109-09	1/31/2017	7:35
RC-28V1(37-48)	L36109-10	1/31/2017	7:35
RC-38V1(52-62)	L36109-11	1/31/2017	7:35
RC-01V1(5-15)	L36109-12	1/31/2017	7:35
RC-10V1(5-22)	L36109-13	1/31/2017	7:35
SS-16 (GRAB)	L36109-14	1/31/2017	7:35
RC-10V1(5-22)DUP	L36109-15	1/31/2017	7:35

Monsanto Company

March 28, 2017

Project ID: 4512184569
ACZ Project ID: L36109

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 15 soil samples from Monsanto Company on March 20, 2017. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L36109. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

1. (N1) All sample weights include bag weight. L36109-13, 15 same weight recorded as this was an internal Duplicate. Sample weights are from original ACZ project # L35641.

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-40V1(22-37)

ACZ Sample ID: ***L36109-01***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	11.7		*	mg/Kg	0.1	0.5	03/27/17 10:35	mfm
Cadmium, total (3050)	M6020 ICP-MS	505	1.64			mg/Kg	0.05	0.3	03/27/17 10:35	mfm
Selenium, total (3050)	M6020 ICP-MS	505	16.9			mg/Kg	0.05	0.1	03/27/17 16:24	enb
Uranium, total (3050)	M6020 ICP-MS	505	6.51			mg/Kg	0.05	0.3	03/27/17 10:35	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	89.7		*	%	0.1	0.5	03/22/17 10:58	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/21/17 14:32	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-01.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-03V1(20-30)

ACZ Sample ID: ***L36109-02***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	26.6		*	mg/Kg	0.1	0.5	03/27/17 10:44	mfm
Cadmium, total (3050)	M6020 ICP-MS	500	1.87			mg/Kg	0.05	0.3	03/27/17 10:44	mfm
Selenium, total (3050)	M6020 ICP-MS	500	22.6			mg/Kg	0.05	0.1	03/27/17 16:33	enb
Uranium, total (3050)	M6020 ICP-MS	500	36.6			mg/Kg	0.05	0.3	03/27/17 10:44	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	78.0		*	%	0.1	0.5	03/22/17 13:54	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/21/17 18:19	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-02.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-07V1(40-55)

ACZ Sample ID: ***L36109-03***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	6.7		*	mg/Kg	0.1	0.5	03/27/17 10:47	mfm
Cadmium, total (3050)	M6020 ICP-MS	500	0.88			mg/Kg	0.05	0.3	03/27/17 10:47	mfm
Selenium, total (3050)	M6020 ICP-MS	500	2.48			mg/Kg	0.05	0.1	03/27/17 16:36	enb
Uranium, total (3050)	M6020 ICP-MS	500	2.65			mg/Kg	0.05	0.3	03/27/17 10:47	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	90.0		*	%	0.1	0.5	03/22/17 15:22	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/21/17 19:35	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-03.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-11V1(30-40)

ACZ Sample ID: ***L36109-04***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	5.8		*	mg/Kg	0.1	0.5	03/27/17 10:50	mfm
Cadmium, total (3050)	M6020 ICP-MS	500	1.13			mg/Kg	0.05	0.3	03/27/17 10:50	mfm
Selenium, total (3050)	M6020 ICP-MS	500	9.42			mg/Kg	0.05	0.1	03/27/17 16:45	enb
Uranium, total (3050)	M6020 ICP-MS	500	2.71			mg/Kg	0.05	0.3	03/27/17 10:50	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.5		*	%	0.1	0.5	03/22/17 16:50	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/21/17 20:51	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-04.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-19V1(42-52)

ACZ Sample ID: ***L36109-05***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	4.6			mg/Kg	0.1	0.5	03/27/17 16:49	enb
Cadmium, total (3050)	M6020 ICP-MS	500	0.80			mg/Kg	0.05	0.3	03/27/17 11:03	mfm
Selenium, total (3050)	M6020 ICP-MS	500	4.90			mg/Kg	0.05	0.1	03/27/17 16:49	enb
Uranium, total (3050)	M6020 ICP-MS	500	2.31			mg/Kg	0.05	0.3	03/27/17 11:03	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	86.9		*	%	0.1	0.5	03/22/17 18:18	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/21/17 22:07	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-05.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-21V1(27-37)

ACZ Sample ID: ***L36109-06***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	6.3			mg/Kg	0.1	0.5	03/27/17 16:52	enb
Cadmium, total (3050)	M6020 ICP-MS	500	1.02			mg/Kg	0.05	0.3	03/27/17 11:06	mfm
Selenium, total (3050)	M6020 ICP-MS	500	12.0			mg/Kg	0.05	0.1	03/27/17 16:52	enb
Uranium, total (3050)	M6020 ICP-MS	500	3.36			mg/Kg	0.05	0.3	03/27/17 11:06	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	91.0		*	%	0.1	0.5	03/22/17 19:46	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/21/17 23:22	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-06.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-21V1(107-117)

ACZ Sample ID: ***L36109-07***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	4.5			mg/Kg	0.1	0.5	03/27/17 16:55	enb
Cadmium, total (3050)	M6020 ICP-MS	500	0.98			mg/Kg	0.05	0.3	03/27/17 11:09	mfm
Selenium, total (3050)	M6020 ICP-MS	500	12.5			mg/Kg	0.05	0.1	03/27/17 16:55	enb
Uranium, total (3050)	M6020 ICP-MS	500	3.19			mg/Kg	0.05	0.3	03/27/17 11:09	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.8		*	%	0.1	0.5	03/22/17 21:15	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 0:38	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-07.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-24V1(27-42)

ACZ Sample ID: ***L36109-08***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	5.7			mg/Kg	0.1	0.5	03/27/17 16:58	enb
Cadmium, total (3050)	M6020 ICP-MS	500	1.87			mg/Kg	0.05	0.3	03/27/17 11:12	mfm
Selenium, total (3050)	M6020 ICP-MS	500	9.18			mg/Kg	0.05	0.1	03/27/17 16:58	enb
Uranium, total (3050)	M6020 ICP-MS	500	2.63			mg/Kg	0.05	0.3	03/27/17 11:12	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	90.7		*	%	0.1	0.5	03/22/17 22:43	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 1:54	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-08.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-24V1(102-112)

ACZ Sample ID: ***L36109-09***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	10.8			mg/Kg	0.1	0.5	03/27/17 17:01	enb
Cadmium, total (3050)	M6020 ICP-MS	500	1.47			mg/Kg	0.05	0.3	03/27/17 11:15	mfm
Selenium, total (3050)	M6020 ICP-MS	500	22.8			mg/Kg	0.05	0.1	03/27/17 17:01	enb
Uranium, total (3050)	M6020 ICP-MS	500	6.97			mg/Kg	0.05	0.3	03/27/17 11:15	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	87.5		*	%	0.1	0.5	03/23/17 0:11	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 3:10	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-09.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-28V1(37-48)

ACZ Sample ID: ***L36109-10***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	8.4			mg/Kg	0.1	0.5	03/27/17 17:04	enb
Cadmium, total (3050)	M6020 ICP-MS	500	1.15			mg/Kg	0.05	0.3	03/27/17 11:18	mfm
Selenium, total (3050)	M6020 ICP-MS	500	7.79			mg/Kg	0.05	0.1	03/27/17 17:04	enb
Uranium, total (3050)	M6020 ICP-MS	500	4.56			mg/Kg	0.05	0.3	03/27/17 11:18	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	84.6		*	%	0.1	0.5	03/23/17 1:39	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 4:25	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-10.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-38V1(52-62)

ACZ Sample ID: ***L36109-11***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	500	2.0			mg/Kg	0.1	0.5	03/27/17 17:11	enb
Cadmium, total (3050)	M6020 ICP-MS	500	0.48			mg/Kg	0.05	0.3	03/27/17 11:21	mfm
Selenium, total (3050)	M6020 ICP-MS	500	1.90			mg/Kg	0.05	0.1	03/27/17 17:11	enb
Uranium, total (3050)	M6020 ICP-MS	500	2.47			mg/Kg	0.05	0.3	03/27/17 11:21	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.2		*	%	0.1	0.5	03/23/17 3:07	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 5:41	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-11.

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-01V1(5-15)

ACZ Sample ID: ***L36109-12***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	12.1			mg/Kg	0.1	0.5	03/27/17 17:14	enb
Cadmium, total (3050)	M6020 ICP-MS	505	0.82			mg/Kg	0.05	0.3	03/27/17 11:24	mfm
Selenium, total (3050)	M6020 ICP-MS	505	0.24			mg/Kg	0.05	0.1	03/27/17 17:14	enb
Uranium, total (3050)	M6020 ICP-MS	505	0.66			mg/Kg	0.05	0.3	03/27/17 11:24	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	78.6		*	%	0.1	0.5	03/23/17 4:35	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 6:57	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-12.

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-10V1(5-22)

ACZ Sample ID: ***L36109-13***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	6.1			mg/Kg	0.1	0.5	03/27/17 17:23	enb
Cadmium, total (3050)	M6020 ICP-MS	505	0.68			mg/Kg	0.05	0.3	03/27/17 11:27	mfm
Selenium, total (3050)	M6020 ICP-MS	505	0.32			mg/Kg	0.05	0.1	03/27/17 17:23	enb
Uranium, total (3050)	M6020 ICP-MS	505	0.52			mg/Kg	0.05	0.3	03/27/17 11:27	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	84.9		*	%	0.1	0.5	03/23/17 6:03	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 8:13	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-13.

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SS-16 (GRAB)

ACZ Sample ID: ***L36109-14***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	8.5			mg/Kg	0.1	0.5	03/27/17 17:26	enb
Cadmium, total (3050)	M6020 ICP-MS	510	0.61			mg/Kg	0.05	0.3	03/27/17 11:30	mfm
Selenium, total (3050)	M6020 ICP-MS	510	0.24			mg/Kg	0.05	0.1	03/27/17 17:26	enb
Uranium, total (3050)	M6020 ICP-MS	510	0.55			mg/Kg	0.05	0.3	03/27/17 11:30	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	81.5		*	%	0.1	0.5	03/23/17 7:32	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 9:29	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-14.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-10V1(5-22)DUP

ACZ Sample ID: ***L36109-15***
Date Sampled: *01/31/17 07:35*
Date Received: *03/20/17*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	5.6			mg/Kg	0.1	0.5	03/27/17 17:30	enb
Cadmium, total (3050)	M6020 ICP-MS	505	0.61			mg/Kg	0.05	0.3	03/27/17 11:39	mfm
Selenium, total (3050)	M6020 ICP-MS	505	0.25			mg/Kg	0.05	0.1	03/27/17 17:30	enb
Uranium, total (3050)	M6020 ICP-MS	505	0.47			mg/Kg	0.05	0.3	03/27/17 11:39	mfm

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	87.4		*	%	0.1	0.5	03/23/17 9:00	dbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								03/22/17 10:44	bcc

Note: This report is for additional analysis of the sample previously reported as ACZ project L35641-15.

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Monsanto Company

ACZ Project ID: ***L36109***

Arsenic, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG420063													
WG420063ICV	ICV	03/27/17 10:10	MS170301-3	.05		.05238	mg/L	105	90	110			
WG420063ICB	ICB	03/27/17 10:13				U	mg/L		-0.0006	0.0006			
WG420063ICSA	ICSA	03/27/17 10:17				U	mg/L		-0.001	0.001			
WG420063ICSAB	ICSAB	03/27/17 10:20	MS170303-2	.02004		.02042	mg/L	102	80	120			
WG419750PBS	PBS	03/27/17 10:26				.33	mg/Kg		-0.3	0.3			B7
WG419750LCSS	LCSS	03/27/17 10:29	PCN52822	145		137	mg/Kg		115	176			
WG419750LCSSD	LCSSD	03/27/17 10:32	PCN52822	145		136.4	mg/Kg		115	176	0	20	
L36109-01MS	MS	03/27/17 10:38	MS170209-3	25.3005	11.7	41.23	mg/Kg	117	75	125			
L36109-01MSD	MSD	03/27/17 10:41	MS170209-3	25.3005	11.7	40.63	mg/Kg	114	75	125	1	20	
L36109-04SDL	SDL	03/27/17 10:53			5.8	5.95	mg/Kg				3	10	
WG420063CCV1	CCV	03/27/17 10:56	MS170322-4	.1002		.1089	mg/L	109	90	110			
WG420063CCB1	CCB	03/27/17 10:59				U	mg/L		-0.0006	0.0006			
WG420063CCB2	CCB	03/27/17 11:36				U	mg/L		-0.0006	0.0006			
WG420063CCV3	CCV	03/27/17 11:42	MS170322-4	.1002		.108	mg/L	108	90	110			
WG420063CCB3	CCB	03/27/17 11:45				U	mg/L		-0.0006	0.0006			
WG420112													
WG420112ICV	ICV	03/27/17 15:58	MS170301-3	.05		.04876	mg/L	98	90	110			
WG420112ICB	ICB	03/27/17 16:01				U	mg/L		-0.0006	0.0006			
WG420112ICSA	ICSA	03/27/17 16:04				U	mg/L		-0.001	0.001			
WG420112ICSAB	ICSAB	03/27/17 16:07	MS170303-2	.02004		.02068	mg/L	103	80	120			
WG419750PBS	PBS	03/27/17 16:14				.16	mg/Kg		-0.3	0.3			
WG419750LCSS	LCSS	03/27/17 16:17	PCN52822	145		140.9	mg/Kg		115	176			
WG419750LCSSD	LCSSD	03/27/17 16:20	PCN52822	145		138.1	mg/Kg		115	176	2	20	
L36109-01MS	MS	03/27/17 16:27	MS170209-3	25.3005	10.5	36.03	mg/Kg	101	75	125			
L36109-01MSD	MSD	03/27/17 16:30	MS170209-3	25.3005	10.5	35.51	mg/Kg	99	75	125	1	20	
WG420112CCV1	CCV	03/27/17 16:39	MS170322-4	.1002		.1006	mg/L	100	90	110			
WG420112CCB1	CCB	03/27/17 16:42				U	mg/L		-0.0006	0.0006			
L36109-10SDL	SDL	03/27/17 17:07			8.4	8.05	mg/Kg				4	10	
WG420112CCV2	CCV	03/27/17 17:17	MS170322-4	.1002		.1033	mg/L	103	90	110			
WG420112CCB2	CCB	03/27/17 17:20				U	mg/L		-0.0006	0.0006			
WG420112CCV3	CCV	03/27/17 17:33	MS170322-4	.1002		.1001	mg/L	100	90	110			
WG420112CCB3	CCB	03/27/17 17:36				U	mg/L		-0.0006	0.0006			

Monsanto Company

ACZ Project ID: ***L36109***

Cadmium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG420063													
WG420063ICV	ICV	03/27/17 10:10	MS170301-3	.05		.05239	mg/L	105	90	110			
WG420063ICB	ICB	03/27/17 10:13				U	mg/L		-0.0003	0.0003			
WG420063ICSA	ICSA	03/27/17 10:17		.00013		.00013	mg/L		-0.0005	0.0005			
WG420063ICSAB	ICSAB	03/27/17 10:20	MS170303-2	.02002		.01993	mg/L	100	80	120			
WG419750PBS	PBS	03/27/17 10:26				U	mg/Kg		-0.15	0.15			
WG419750LCSS	LCSS	03/27/17 10:29	PCN52822	87.6		89.75	mg/Kg		72.4	103			
WG419750LCSSD	LCSSD	03/27/17 10:32	PCN52822	87.6		86.5	mg/Kg		72.4	103	4	20	
L36109-01MS	MS	03/27/17 10:38	MS170209-3	25.27525	1.64	29.154	mg/Kg	109	75	125			
L36109-01MSD	MSD	03/27/17 10:41	MS170209-3	25.27525	1.64	28.987	mg/Kg	108	75	125	1	20	
L36109-04SDL	SDL	03/27/17 10:53			1.13	1.09	mg/Kg				4	10	
WG420063CCV1	CCV	03/27/17 10:56	MS170322-4	.1001		.1035	mg/L	103	90	110			
WG420063CCB1	CCB	03/27/17 10:59				U	mg/L		-0.0003	0.0003			
WG420063CCV2	CCV	03/27/17 11:33	MS170322-4	.1001		.1031	mg/L	103	90	110			
WG420063CCB2	CCB	03/27/17 11:36				U	mg/L		-0.0003	0.0003			
WG420063CCV3	CCV	03/27/17 11:42	MS170322-4	.1001		.1021	mg/L	102	90	110			
WG420063CCB3	CCB	03/27/17 11:45				U	mg/L		-0.0003	0.0003			

Selenium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG420112													
WG420112ICV	ICV	03/27/17 15:58	MS170301-3	.05		.05257	mg/L	105	90	110			
WG420112ICB	ICB	03/27/17 16:01				.00014	mg/L		-0.0003	0.0003			
WG420112ICSA	ICSA	03/27/17 16:04		.00022		.00022	mg/L		-0.0003	0.0003			
WG420112ICSAB	ICSAB	03/27/17 16:07	MS170303-2	.02002		.02044	mg/L	102	80	120			
WG419750PBS	PBS	03/27/17 16:14				.124	mg/Kg		-0.15	0.15			
WG419750LCSS	LCSS	03/27/17 16:17	PCN52822	178		177.3	mg/Kg		140	216			
WG419750LCSSD	LCSSD	03/27/17 16:20	PCN52822	178		178.2	mg/Kg		140	216	1	20	
L36109-01MS	MS	03/27/17 16:27	MS170209-3	12.637625	16.9	30.335	mg/Kg	106	75	125			
L36109-01MSD	MSD	03/27/17 16:30	MS170209-3	12.637625	16.9	30.659	mg/Kg	109	75	125	1	20	
WG420112CCV1	CCV	03/27/17 16:39	MS170322-4	.25025		.2508	mg/L	100	90	110			
WG420112CCB1	CCB	03/27/17 16:42				.0002	mg/L		-0.0003	0.0003			
L36109-10SDL	SDL	03/27/17 17:07			7.79	7.7	mg/Kg				1	10	
WG420112CCV2	CCV	03/27/17 17:17	MS170322-4	.25025		.2586	mg/L	103	90	110			
WG420112CCB2	CCB	03/27/17 17:20				.00019	mg/L		-0.0003	0.0003			
WG420112CCV3	CCV	03/27/17 17:33	MS170322-4	.25025		.2578	mg/L	103	90	110			
WG420112CCB3	CCB	03/27/17 17:36				.00018	mg/L		-0.0003	0.0003			

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG419809													
WG419809PBS	PBS	03/22/17 9:30				U	%		-0.1	0.1			
L36109-01DUP	DUP	03/22/17 12:26			89.7	91.94	%				2	20	

Monsanto Company

ACZ Project ID: ***L36109***

Uranium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG420063													
WG420063ICV	ICV	03/27/17 10:10	MS170301-3	.05		.04611	mg/L	92	90	110			
WG420063ICB	ICB	03/27/17 10:13				U	mg/L		-0.0003	0.0003			
WG420063ICSA	ICSA	03/27/17 10:17				U	mg/L		-0.0005	0.0005			
WG420063ICSAB	ICSAB	03/27/17 10:20	MS170303-2	.02		.01799	mg/L	90	80	120			
WG419750PBS	PBS	03/27/17 10:26				U	mg/Kg		-0.15	0.15			
WG419750LCSS	LCSS	03/27/17 10:29	PCN52822	17.6		15.52	mg/Kg		14.2	20.9			
WG419750LCSSD	LCSSD	03/27/17 10:32	PCN52822	17.6		15.08	mg/Kg		14.2	20.9	3	20	
L36109-01MS	MS	03/27/17 10:38	MS170209-3	12.625	6.51	19.089	mg/Kg	100	75	125			
L36109-01MSD	MSD	03/27/17 10:41	MS170209-3	12.625	6.51	18.877	mg/Kg	98	75	125	1	20	
L36109-04SDL	SDL	03/27/17 10:53			2.71	2.605	mg/Kg				4	10	
WG420063CCV1	CCV	03/27/17 10:56	MS170322-4	.1		.1037	mg/L	104	90	110			
WG420063CCB1	CCB	03/27/17 10:59				U	mg/L		-0.0003	0.0003			
WG420063CCV2	CCV	03/27/17 11:33	MS170322-4	.1		.1031	mg/L	103	90	110			
WG420063CCB2	CCB	03/27/17 11:36				U	mg/L		-0.0003	0.0003			
WG420063CCV3	CCV	03/27/17 11:42	MS170322-4	.1		.1009	mg/L	101	90	110			
WG420063CCB3	CCB	03/27/17 11:45				U	mg/L		-0.0003	0.0003			

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Inorganic Extended Qualifier Report

Monsanto Company

ACZ Project ID: ***L36109***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L36109-01	*N*G420063	Arsenic, total (3050)	M6020 ICP-MS	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
L36109-02	*N*G420063	Arsenic, total (3050)	M6020 ICP-MS	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
L36109-03	*N*G420063	Arsenic, total (3050)	M6020 ICP-MS	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
L36109-04	*N*G420063	Arsenic, total (3050)	M6020 ICP-MS	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.

Monsanto Company ACZ Project ID: ***L36109***

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Solids, Percent	D2216-80

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG420063

ACZ Laboratories, Inc

Instrument ID: ICPMS4
Analyst: MFM
ACZ Dept: 33
Create Date: 03/27/2017 9:15
Start Date/Time: 3/27/17
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 30 50	CD MS 30 50	SE MS 30 50	U MS 30 50	Dilution
1	WG420063ICV	MS170301-3			1			✓	✓	✓	✓	1
2	WG420063ICB	NONE			1			✓	✓	✓	✓	1
3	WG420063ICSA	MS170303-1			1			✓	✓	✓	✓	1
4	WG420063ICSAB	MS170303-2			1			✓	✓	✓	✓	1
5	WG420063WASH	NONE			1			✓	✓	✓	✓	1
6	WG419750PBS	NONE			100			✓	✓	✓	✓	500
7	WG419750LCSS	PCN52822			100			✓	✓	✓	✓	5000
8	WG419750LCSSD	PCN52822			100			✓	✓	✓	✓	5000
9	L36109-01	RC-40V1(22-37)		30	101			✓	✓	✓	✓	505
10	L36109-01MS	MS170209-3			101			✓	✓	✓	✓	505
11	L36109-01MSD	MS170209-3			101			✓	✓	✓	✓	505
12	L36109-02	RC-03V1(20-30)		30	100			✓	✓	✓	✓	500
13	WG420063CCV1	MS170322-4			1			✓	✓	✓	✓	1
14	WG420063CCB1	NONE			1			✓	✓	✓	✓	1
15	L36109-03	RC-07V1(40-55)		30	100			✓	✓	✓	✓	500
16	L36109-04	RC-11V1(30-40)		30	100			✓	✓	✓	✓	500
17	L36109-04SDL	NONE			1			✓	✓	✓	✓	500
18	L36109-05	RC-19V1(42-52)		30	100			✓	✓	✓	✓	500
19	L36109-06	RC-21V1(27-37)		30	100			✓	✓	✓	✓	500
20	L36109-07	RC-21V1(107-117)		30	100			✓	✓	✓	✓	500
21	L36109-08	RC-24V1(27-42)		30	100			✓	✓	✓	✓	500
22	L36109-09	RC-24V1(102-112)		30	100			✓	✓	✓	✓	500

Report Comments:

Internal Comments

AREV: MFM 3/27/17
Initials, Date

SREV: ENB 3/27/17
Initials, Date

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG420063

ACZ Laboratories, Inc

Instrument ID: ICPMS4
Analyst:
ACZ Dept: 33
Create Date: 03/27/2017 9:15
Start Date/Time:
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 30 50	CD MS 30 50	SE MS 30 50	U MS 30 50	Dilution
23	L36109-10	RC-28V1(37-48)		30	100			✓	✓	✓	✓	500
24	L36109-11	RC-38V1(52-62)		30	100			✓	✓	✓	✓	500
25	WG420063CCV2	MS170322-4			1			✓	✓	✓	✓	1
26	WG420063CCB2	NONE			1			✓	✓	✓	✓	1
27	L36109-12	RC-01V1(5-15)		30	101			✓	✓	✓	✓	505
28	L36109-13	RC-10V1(5-22)		30	101			✓	✓	✓	✓	505
29	L36109-14	SS-16 (GRAB)		30	102			✓	✓	✓	✓	510
30	L36109-15	RC-10V1(5-22)DUP		30	101			✓	✓	✓	✓	505
31	WG420063CCV3	MS170322-4			1			✓	✓	✓	✓	1
32	WG420063CCB3	NONE			1			✓	✓	✓	✓	1

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG420063

ACZ Laboratories, Inc

Instrument ID: ICPMS4
Analyst:
ACZ Dept: 33
Create Date: 03/27/2017 9:15
Start Date/Time:
End Date/Time:

Sample	Login Comments
L36109-01	ZIPLOCK -- RELOG OF L35641-01 || Delivered to Soils.
L36109-01MS	ICPMS Spike
L36109-01MSD	ICPMS Spike
L36109-02	ZIPLOCK -- RELOG OF L35641-02 || Delivered to Soils.
L36109-03	ZIPLOCK -- RELOG OF L35641-03 || Delivered to Soils.
L36109-04	ZIPLOCK -- RELOG OF L35641-04 || Delivered to Soils.
L36109-05	ZIPLOCK -- RELOG OF L35641-05 || Delivered to Soils.
L36109-06	ZIPLOCK -- RELOG OF L35641-06 || Delivered to Soils.
L36109-07	ZIPLOCK -- RELOG OF L35641-07 || Delivered to Soils.
L36109-08	ZIPLOCK -- RELOG OF L35641-08 || Delivered to Soils.
L36109-09	ZIPLOCK -- RELOG OF L35641-09 || Delivered to Soils.
L36109-10	ZIPLOCK -- RELOG OF L35641-10 || Delivered to Soils.
L36109-11	ZIPLOCK -- RELOG OF L35641-11 || Delivered to Soils.
L36109-12	ZIPLOCK -- RELOG OF L35641-12 || Delivered to Soils.
L36109-13	ZIPLOCK -- RELOG OF L35641-13 || Delivered to Soils.
L36109-14	ZIPLOCK -- RELOG OF L35641-14 || Delivered to Soils.
L36109-15	ZIPLOCK -- RELOG OF L35641-15 || Delivered to Soils.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L36109-1703281441

ACZ Laboratories, Inc.
ICPMS DATA REVIEW CHECKLIST

AREV: MFM
Date: 3/27/17

SREV: ENB
Date: 3/27/17

Workgroup: 420063
Sample Type: 3050
Analysis Date: 3/27/17
Analyst: MFM

	Yes	No	N/A
1) Is the instrument ID on the bench sheet correct?	✓		
2) Has a passing method tune been performed within 24 hours?	✓		
3) Was the low calibration point dropped? If yes, notify PM of change to PQLs.		✓	
4) Is the linear regression ≥ 0.995 for the analytes of interest?	✓		
5) Was the PQV standard analyzed & evaluated for DW samples ? (Fail in LIMS if no DW sxs in WG.)			✓
6) Do the dilution factors on the benchsheet match the sequence in the raw data?	✓		
7) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			✓
8) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
9) Are the % Recoveries of the internal standards within the method limits?	✓		
10) Are all of the QC critera listed in LIMS within specified limits?		✓	
11) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?	✓		
12) Are all errors properly crossed out (i.e. single-line, dated & initialed)?	✓		
13) Is a current standard/reagent form attached to the workgroup?	✓		
14) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
PBS	As ↑	B7/Redo
MS/D	Se ↑	Redo
CCV1	Se ↑	Redo
CCV2	As ↑, Se ↑	Redo
CCV/B3	Se ↑	Redo

Calibration Standards

6020/200.8 Stock #1: MS170322-1 SCN
6020/200.8 Stock #2: MS170322-2 SCN
6020/200.8 Stock #3: MS170322-3 SCN

PQV STD: MS170302-4 SCN
Exp. 6/2/2017

INT STD: MS160923-1 SCN
Exp. 8/25/2017

Nitric Acid: 52607 PCN

Hydrochloric Acid: 52890 PCN

VERIFIED: MFM 3/27/17

Calibration Coefficients

Sample Name: CCV
Date Acquired: Mar 27 2017 10:56 am
Acq. Method: ACZ.M
Current Method Path: C:\ICPCHEM\1\DATA\wg420063.b\
Calibration Path: C:\ICPCHEM\1\DATA\WG420063.B\

Element Name	Mass	Calibration Corr Coef	Tune Step	IS Ref
Be	9	0.9999	3	6
B	11	0.9981	3	6
Al	27	0.9998	3	72
V	51	0.9990	2	45
Cr	52	0.9990	2	45
Mn	55	0.9999	3	72
Fe	56	0.9992	1	45
Co	59	1.0000	3	72
Ni	60	0.9990	2	45
Cu	63	0.9970	2	45
Zn	66	0.9991	3	72
As	75	0.9990	2	45
Se	78	0.9991	1	45
Mo	98	0.9999	3	115
Ag	107	0.9998	3	115
Cd	111	1.0000	3	115
Sn	118	0.9999	3	115
Sb	121	0.9999	3	115
Te	125	0.9999	3	115
Cs	133	0.9998	3	115
Ba	137	0.9991	3	115
Tl	205	0.9999	3	209
Pb	208	0.9999	3	209
Th	232	0.9998	3	209
U	238	0.9998	3	209

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG420063

Date Reported:	27-Mar-17
Run ID:	R1517091
Date Analyzed:	27-Mar-17
ICAL Workgroup:	
Instrument ID:	ICPMS4

WG420063ICV

Tag: Measured: 3/27/2017 10:10:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.05238	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	105	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.05239	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	105	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.05466	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	109	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.04611	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	92	1		%	++	0.0001	0.0005			

WG420063ICB

Tag: Measured: 3/27/2017 10:13:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.00016	1	B	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG420063ICSA

Tag: Measured: 3/27/2017 10:17:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.00013	1	B	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

WG420063ICSAB

Tag: Measured: 3/27/2017 10:20:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.02042	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	102	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.01993	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	100	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.01964	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	98	1		%	++	0.0001	0.0003			
SREV	URANIUM	FOUND	0.01799	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	90	1		%	++	0.0001	0.0005			

WG419750PBS

Tag: Measured: 3/27/2017 10:26:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.33	500	B	mg/Kg	ALRT	0.1	0.5		B7	
SREV	CADMIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			
SREV	SELENIUM	FOUND	0.089	500	B	mg/Kg	++	0.05	0.1			
SREV	URANIUM	FOUND		500	U	mg/Kg	++	0.05	0.3			

WG419750LCSS

Tag: Measured: 3/27/2017 10:29:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	137	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	94	5000		%	++	1	5			
SREV	CADMIUM	FOUND	89.75	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	102	5000		%	++	0.5	3			
SREV	SELENIUM	FOUND	173.3	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	97	5000		%	++	0.5	1			
SREV	URANIUM	FOUND	15.52	5000		mg/Kg	++	0.5	3			
SREV	URANIUM	REC	88	5000		%	++	0.5	3			

WG419750LCSSD

Tag: Measured: 3/27/2017 10:32:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	136.4	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	94	5000		%	++	1	5			
SREV	ARSENIC	RPD	0	5000		%	++	1	5			
SREV	CADMIUM	FOUND	86.5	5000		mg/Kg	++	0.5	3			
SREV	CADMIUM	REC	99	5000		%	++	0.5	3			
SREV	CADMIUM	RPD	4	5000		%	++	0.5	3			
SREV	SELENIUM	FOUND	178.85	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	100	5000		%	++	0.5	1			
SREV	SELENIUM	RPD	3	5000		%	++	0.5	1			
SREV	URANIUM	FOUND	15.08	5000		mg/Kg	++	0.5	3			
SREV	URANIUM	REC	86	5000		%	++	0.5	3			
SREV	URANIUM	RPD	3	5000		%	++	0.5	3			

L36109-01

Tag: Measured: 3/27/2017 10:35:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	11.7	505		mg/Kg	++	0.1	0.5		B7	
SREV	CADMIUM	-MS-3050	1.64	505		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	15.7	505		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	6.51	505		mg/Kg	++	0.05	0.3			

L36109-01MS

Tag: Measured: 3/27/2017 10:38:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	41.23	505		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	117	505		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	29.154	505		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	109	505		%	++	0.05	0.3			
FAIL	SELENIUM	FOUND	32.623	505		mg/Kg	++	0.05	0.1			
FAIL	SELENIUM	REC	134	505		%	ALRT	0.05	0.1			
SREV	URANIUM	FOUND	19.089	505		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REC	100	505		%	++	0.05	0.3			

L36109-01MSD

Tag: Measured: 3/27/2017 10:41:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	40.63	505		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	114	505		%	++	0.1	0.5			
SREV	ARSENIC	RPD	1	505		%	++	0.1	0.5			
SREV	CADMIUM	FOUND	28.987	505		mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REC	108	505		%	++	0.05	0.3			
SREV	CADMIUM	RPD	1	505		%	++	0.05	0.3			
FAIL	SELENIUM	FOUND	32.714	505		mg/Kg	++	0.05	0.1			
FAIL	SELENIUM	REC	135	505		%	ALRT	0.05	0.1			
FAIL	SELENIUM	RPD	0	505		%	++	0.05	0.1			
SREV	URANIUM	FOUND	18.877	505		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REC	98	505		%	++	0.05	0.3			
SREV	URANIUM	RPD	1	505		%	++	0.05	0.3			

L36109-02

Tag: Measured: 3/27/2017 10:44:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	26.6	500		mg/Kg	++	0.1	0.5		B7	
SREV	CADMIUM	-MS-3050	1.87	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	23.6	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	36.6	500		mg/Kg	++	0.05	0.3			

L36109-03

Tag: Measured: 3/27/2017 10:47:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.7	500		mg/Kg	++	0.1	0.5		B7	
SREV	CADMIUM	-MS-3050	.88	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	2.79	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	2.65	500		mg/Kg	++	0.05	0.3			

L36109-04

Tag: Measured: 3/27/2017 10:50:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	5.8	500		mg/Kg	++	0.1	0.5		B7	
SREV	CADMIUM	-MS-3050	1.13	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	9.66	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	2.71	500		mg/Kg	++	0.05	0.3			

L36109-04SDL

Tag: Measured: 3/27/2017 10:53:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	D	3	500		%	++	0.1	0.5			
SREV	ARSENIC	FOUND	1.19	500		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REG	5.95	500		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	D	4	500		%	++	0.05	0.3			
SREV	CADMIUM	FOUND	0.218	500	B	mg/Kg	++	0.05	0.3			
SREV	CADMIUM	REG	1.09	500	B	mg/Kg	++	0.05	0.3			
SREV	SELENIUM	D	3	500		%	++	0.05	0.1			
SREV	SELENIUM	FOUND	1.987	500		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REG	9.935	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	D	4	500		%	++	0.05	0.3			
SREV	URANIUM	FOUND	0.521	500		mg/Kg	++	0.05	0.3			
SREV	URANIUM	REG	2.605	500		mg/Kg	++	0.05	0.3			

WG420063CCV1

Tag: Measured: 3/27/2017 10:56:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.1089	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	109	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.1035	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	103	1		%	++	0.0001	0.0005			
FAIL	SELENIUM	FOUND	0.2789	1		mg/L	++	0.0001	0.0003			
FAIL	SELENIUM	REC	111	1		%	ALRT	0.0001	0.0003			
SREV	URANIUM	FOUND	0.1037	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	104	1		%	++	0.0001	0.0005			

WG420063CCB1

Tag: Measured: 3/27/2017 10:59:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.00017	1	B	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

L36109-05

Tag: Measured: 3/27/2017 11:03:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	5.0	500		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.80	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	5.14	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	2.31	500		mg/Kg	++	0.05	0.3			

L36109-06

Tag: Measured: 3/27/2017 11:06:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	7.6	500		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	1.02	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	12.8	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	3.36	500		mg/Kg	++	0.05	0.3			

L36109-07

Tag: Measured: 3/27/2017 11:09:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	5.5	500		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.98	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	13.9	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	3.19	500		mg/Kg	++	0.05	0.3			

L36109-08

Tag: Measured: 3/27/2017 11:12:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	6.8	500		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	1.87	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	10.5	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	2.63	500		mg/Kg	++	0.05	0.3			

L36109-09

Tag: Measured: 3/27/2017 11:15:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	11.1	500		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	1.47	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	22.6	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	6.97	500		mg/Kg	++	0.05	0.3			

L36109-10

Tag: Measured: 3/27/2017 11:18:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	8.8	500		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	1.15	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	7.62	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	4.56	500		mg/Kg	++	0.05	0.3			

L36109-11

Tag: Measured: 3/27/2017 11:21:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	2.2	500		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.48	500		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	1.69	500		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	2.47	500		mg/Kg	++	0.05	0.3			

L36109-12

Tag: Measured: 3/27/2017 11:24:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	13.2	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.82	505		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	.26	505		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	.66	505		mg/Kg	++	0.05	0.3			

L36109-13

Tag: Measured: 3/27/2017 11:27:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	6.4	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.68	505		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	.37	505		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	.52	505		mg/Kg	++	0.05	0.3			

L36109-14

Tag: Measured: 3/27/2017 11:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	9.3	510		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.61	510		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	.27	510		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	.55	510		mg/Kg	++	0.05	0.3			

WG420063CCV2

Tag: Measured: 3/27/2017 11:33:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
FAIL	ARSENIC	FOUND	0.1125	1		mg/L	++	0.0002	0.001			
FAIL	ARSENIC	REC	112	1		%	ALRT	0.0002	0.001			
SREV	CADMIUM	FOUND	0.1031	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	103	1		%	++	0.0001	0.0005			
FAIL	SELENIUM	FOUND	0.2785	1		mg/L	++	0.0001	0.0003			
FAIL	SELENIUM	REC	111	1		%	ALRT	0.0001	0.0003			
SREV	URANIUM	FOUND	0.1031	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	103	1		%	++	0.0001	0.0005			

WG420063CCB2

Tag: Measured: 3/27/2017 11:36:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.00026	1	B	mg/L	++	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

L36109-15

Tag: Measured: 3/27/2017 11:39:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
REDO	ARSENIC	REG	5.1	505		mg/Kg	++	0.1	0.5			
SREV	CADMIUM	-MS-3050	.61	505		mg/Kg	++	0.05	0.3			
REDO	SELENIUM	REG	.32	505		mg/Kg	++	0.05	0.1			
SREV	URANIUM	U-MS-3050	.47	505		mg/Kg	++	0.05	0.3			

WG420063CCV3

Tag: Measured: 3/27/2017 11:42:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.108	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	108	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.1021	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	102	1		%	++	0.0001	0.0005			
FAIL	SELENIUM	FOUND	0.2769	1		mg/L	++	0.0001	0.0003			
FAIL	SELENIUM	REC	111	1		%	ALRT	0.0001	0.0003			
SREV	URANIUM	FOUND	0.1009	1		mg/L	++	0.0001	0.0005			
SREV	URANIUM	REC	101	1		%	++	0.0001	0.0005			

WG420063CCB3

Tag: Measured: 3/27/2017 11:45:00 AM

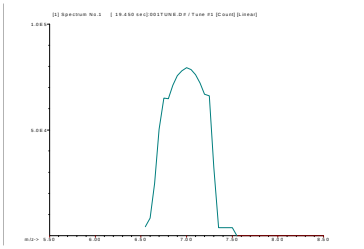
Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
FAIL	SELENIUM	FOUND	0.00032	1		mg/L	ALRT	0.0001	0.0003			
SREV	URANIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			

6020 QC Tune Report

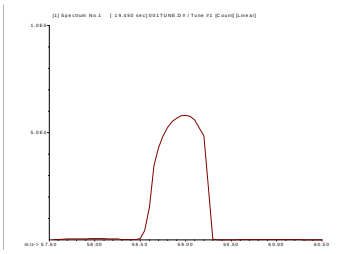
Data File: C:\ICPCHEM\1\DATA\170327at.b\001TUNE.D\001TUNE.D#
Date Acquired: Mar 27 2017 09:40 am
Acq. Method: TN6020.M
Operator: pmc
Sample Name: 6020 Tune
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

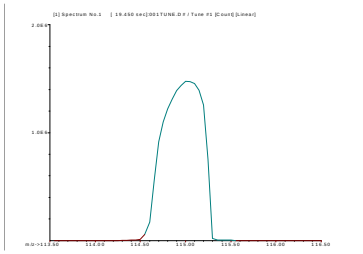
Element	Actual	Required	Flag
7 Li	2.27	5.00	
59 Co	1.83	5.00	
115 In	1.09	5.00	
205 Tl	3.03	5.00	



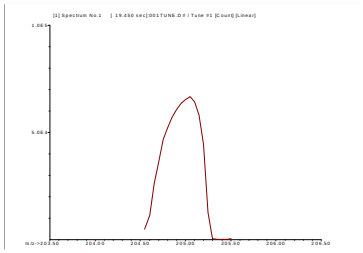
7 Li
Mass Calib.
Actual: 7.00
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.00
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



115 In
Mass Calib.
Actual: 115.05
Required: 114.90 - 115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



205 Tl
Mass Calib.
Actual: 205.00
Required: 204.90 - 205.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\001CAL
Date Acquired: Mar 27 2017 09:49 am
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4975415.00	A	88970.00	1.79
9	Be	106.67	P	12.02	11.27
11	B	104807.10	P	2352.00	2.24
27	Al	62331.02	P	1996.00	3.20
45	Sc	6083549.00	A	251600.00	4.14
45	Sc	1125426.00	A	20880.00	1.86
45	Sc	15504210.00	A	395100.00	2.55
51	V	6055.83	P	215.20	3.55
52	Cr	500.02	P	32.83	6.57
55	Mn	16627.14	P	318.80	1.92
56	Fe	13548.61	P	347.90	2.57
59	Co	696.86	P	61.10	8.77
60	Ni	142.23	P	31.51	22.16
63	Cu	11294.43	P	182.00	1.61
66	Zn	18497.11	P	270.80	1.46
72	Ge	1676824.00	A	41880.00	2.50
72	Ge	481650.91	P	3810.00	0.79
72	Ge	3783802.00	A	47620.00	1.26
74	Ge	2348155.00	A	62620.00	2.67
74	Ge	708015.13	P	5709.00	0.81
74	Ge	5200008.00	A	63580.00	1.22
75	As	163.34	P	53.65	32.85
78	Se	19.11	P	1.64	8.60
98	Mo	123.44	P	33.28	26.96
99	(Mo)		P		
106	Cd		P		
107	Ag	122.23	P	13.47	11.02
108	Cd		P		
111	Cd	38.66	P	17.29	44.73
115	In	7744231.00	A	283900.00	3.67
115	In	2185986.00	A	29080.00	1.33
115	In	13369640.00	A	222800.00	1.67
118	Sn	2832.60	P	73.98	2.61
121	Sb	387.79	P	28.35	7.31
125	Te	41.11	P	5.09	12.39
133	Cs	242.23	P	20.37	8.41
137	Ba	166.67	P	12.02	7.21
159	Tb	18604720.00	A	324400.00	1.74
205	Tl	1130.09	P	170.30	15.07
206	(Pb)		P		
207	(Pb)		P		
208	Pb	804.49	P	24.11	3.00
209	Bi	22228560.00	A	373700.00	1.68
232	Th	373.35	P	78.82	21.11
238	U	26.67	P	6.67	25.00

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\002CAL
Date Acquired: Mar 27 2017 09:52 am
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4862195.00	A	134900.00	2.77
9	Be	68.89	P	11.71	17.00
11	B	103768.40	P	2512.00	2.42
27	Al	60303.94	P	2399.00	3.98
45	Sc	5657032.00	A	408700.00	7.22
45	Sc	1176269.00	A	27410.00	2.33
45	Sc	15018930.00	A	514300.00	3.42
51	V	6425.97	P	263.40	4.10
52	Cr	505.58	P	34.21	6.77
55	Mn	16105.46	P	210.10	1.30
56	Fe	12394.84	P	787.60	6.35
59	Co	607.81	P	60.50	9.95
60	Ni	141.12	P	5.09	3.61
63	Cu	11139.88	P	109.20	0.98
66	Zn	18190.14	P	126.40	0.69
72	Ge	1542483.00	A	117900.00	7.64
72	Ge	498101.41	P	13080.00	2.63
72	Ge	3700324.00	A	102800.00	2.78
74	Ge	2181179.00	A	164500.00	7.54
74	Ge	731258.81	P	16320.00	2.23
74	Ge	5088875.00	A	98890.00	1.94
75	As	152.23	P	53.47	35.13
78	Se	17.11	P	2.17	12.68
98	Mo	134.21	P	6.07	4.52
99	(Mo)		P		
106	Cd		P		
107	Ag	128.89	P	25.02	19.41
108	Cd		P		
111	Cd	17.44	P	17.01	97.53
115	In	7321767.00	A	516300.00	7.05
115	In	2231535.00	A	29330.00	1.31
115	In	13089390.00	A	349300.00	2.67
118	Sn	2742.58	P	177.10	6.46
121	Sb	346.12	P	28.69	8.29
125	Te	51.11	P	10.18	19.92
133	Cs	245.57	P	21.17	8.62
137	Ba	166.67	P	8.82	5.29
159	Tb	18177530.00	A	538500.00	2.96
205	Tl	408.91	P	71.52	17.49
206	(Pb)		P		
207	(Pb)		P		
208	Pb	725.59	P	41.95	5.78
209	Bi	21905000.00	A	443100.00	2.02
232	Th	248.90	P	43.51	17.48
238	U	27.78	P	8.39	30.20

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\003CAL
Date Acquired: Mar 27 2017 09:55 am
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4711898.00	A	13640.00	0.29
9	Be	66.67	P	3.33	5.00
11	B	100693.50	P	1189.00	1.18
27	Al	59745.31	P	910.80	1.52
45	Sc	6055604.00	A	22030.00	0.36
45	Sc	1212988.00	A	48090.00	3.96
45	Sc	14703930.00	A	13550.00	0.09
51	V	6365.96	P	368.80	5.79
52	Cr	538.92	P	27.96	5.19
55	Mn	15851.83	P	184.90	1.17
56	Fe	13299.72	P	175.40	1.32
59	Co	552.25	P	53.99	9.78
60	Ni	130.01	P	26.67	20.52
63	Cu	12598.82	P	355.40	2.82
66	Zn	17745.21	P	293.30	1.65
72	Ge	1663216.00	A	18950.00	1.14
72	Ge	504855.00	P	17090.00	3.39
72	Ge	3627351.00	A	26780.00	0.74
74	Ge	2340972.00	A	10420.00	0.45
74	Ge	744310.38	P	29810.00	4.01
74	Ge	4991164.00	A	71220.00	1.43
75	As	157.78	P	48.57	30.78
78	Se	16.00	P	2.19	13.66
98	Mo	111.68	P	30.52	27.33
99	(Mo)		P		
106	Cd		P		
107	Ag	107.78	P	25.02	23.21
108	Cd		P		
111	Cd	13.36	P	14.12	105.70
115	In	7865358.00	A	29490.00	0.37
115	In	2305248.00	A	103600.00	4.49
115	In	12889320.00	A	45610.00	0.35
118	Sn	3434.96	P	46.72	1.36
121	Sb	330.57	P	28.50	8.62
125	Te	44.45	P	22.20	49.95
133	Cs	256.68	P	28.48	11.10
137	Ba	163.34	P	11.55	7.07
159	Tb	17827090.00	A	114500.00	0.64
205	Tl	230.01	P	8.82	3.83
206	(Pb)		P		
207	(Pb)		P		
208	Pb	666.70	P	28.48	4.27
209	Bi	21523620.00	A	289300.00	1.34
232	Th	253.34	P	64.38	25.41
238	U	27.78	P	10.18	36.65

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\004CALS.D\004CALS.D#
Date Acquired: Mar 27 2017 09:58 am
Operator:
Sample Name: PQV Std
Misc Info:
Vial Number: 1303
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	4656744.00	A	41380.00	0.89
9 Be	447.80	P	15.40	3.44
11 B	102175.20	P	421.10	0.41
27 Al	92468.90	P	1121.00	1.21
45 Sc	6132192.00	A	176600.00	2.88
45 Sc	1234801.00	A	29720.00	2.41
45 Sc	14505150.00	A	97810.00	0.67
51 V	7827.77	P	311.90	3.98
52 Cr	3901.73	P	220.80	5.66
55 Mn	43242.97	P	958.30	2.22
56 Fe	54112.73	P	1164.00	2.15
59 Co	2825.91	P	143.70	5.09
60 Ni	1891.29	P	70.43	3.72
63 Cu	16845.20	P	557.80	3.31
66 Zn	24648.05	P	365.90	1.48
72 Ge	1687452.00	A	50810.00	3.01
72 Ge	518564.91	P	10470.00	2.02
72 Ge	3593503.00	A	44580.00	1.24
74 Ge	2368873.00	A	77330.00	3.26
74 Ge	764472.38	P	13690.00	1.79
74 Ge	4921754.00	A	84860.00	1.72
75 As	344.46	P	20.09	5.83
78 Se	44.11	P	0.84	1.90
98 Mo	10282.09	P	197.40	1.92
99 (Mo)		P		
106 Cd		P		
107 Ag	1752.38	P	142.20	8.11
108 Cd		P		
111 Cd	758.77	P	14.95	1.97
115 In	7910822.00	A	275100.00	3.48
115 In	2325539.00	A	32480.00	1.40
115 In	12738180.00	A	126000.00	0.99
118 Sn	6486.06	P	83.72	1.29
121 Sb	11697.55	P	222.30	1.90
125 Te	1188.98	P	32.03	2.69
133 Cs	17783.42	P	139.40	0.78
137 Ba	6149.28	P	118.60	1.93
159 Tb	17628600.00	A	270300.00	1.53
205 Tl	7465.56	P	56.10	0.75
206 (Pb)		P		
207 (Pb)		P		
208 Pb	9035.91	P	160.10	1.77
209 Bi	21278950.00	A	429600.00	2.02
232 Th	82801.16	P	2063.00	2.49
238 U	8786.45	P	280.70	3.19

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4656743.50	0.89	4711898.50	98.8	59.5 - 120.4	
45 Sc	6132192.50	2.88	6055604.50	101.3	59.5 - 120.4	
45 Sc	1234801.30	2.41	1212987.60	101.8	59.5 - 120.4	
45 Sc	14505155.00	0.67	14703928.00	98.6	59.5 - 120.4	
72 Ge	1687452.40	3.01	1663215.80	101.5	59.5 - 120.4	
72 Ge	518564.94	2.02	504855.03	102.7	59.5 - 120.4	
72 Ge	3593503.30	1.24	3627350.80	99.1	59.5 - 120.4	
74 Ge	2368873.00	3.26	2340971.80	101.2	59.5 - 120.4	
74 Ge	764472.44	1.79	744310.44	102.7	59.5 - 120.4	
74 Ge	4921754.00	1.72	4991163.50	98.6	59.5 - 120.4	
115 In	7910821.50	3.48	7865358.00	100.6	59.5 - 120.4	
115 In	2325539.00	1.40	2305247.80	100.9	59.5 - 120.4	
115 In	12738181.00	0.99	12889323.00	98.8	59.5 - 120.4	
159 Tb	17628604.00	1.53	17827088.00	98.9	59.5 - 120.4	
209 Bi	21278952.00	2.02	21523622.00	98.9	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\005CALS.D\005CALS.D#
Date Acquired: Mar 27 2017 10:01 am
Operator:
Sample Name: Level 3 Std
Misc Info:
Vial Number: 1304
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	4662666.00	A	111900.00	2.40
9 Be	36953.16	P	575.90	1.56
11 B	101996.20	P	2279.00	2.23
27 Al	820752.50	A	7536.00	0.92
45 Sc	6309599.00	A	73360.00	1.16
45 Sc	1162263.00	A	55600.00	4.78
45 Sc	14317090.00	A	355300.00	2.48
51 V	41774.65	P	150.30	0.36
52 Cr	38632.06	P	866.40	2.24
55 Mn	244306.50	P	3889.00	1.59
56 Fe	436355.19	P	6832.00	1.57
59 Co	194721.00	P	4428.00	2.27
60 Ni	35063.73	P	344.70	0.98
63 Cu	105720.70	P	1315.00	1.24
66 Zn	155791.00	P	3104.00	1.99
72 Ge	1708102.00	A	20200.00	1.18
72 Ge	489324.19	P	19640.00	4.01
72 Ge	3505769.00	A	59580.00	1.70
74 Ge	2409366.00	A	19330.00	0.80
74 Ge	721097.31	P	26400.00	3.66
74 Ge	4823232.00	A	82060.00	1.70
75 As	4958.74	P	18.95	0.38
78 Se	5974.84	P	93.68	1.57
98 Mo	83976.18	P	1214.00	1.45
99 (Mo)		P		
106 Cd		P		
107 Ag	34036.05	P	720.60	2.12
108 Cd		P		
111 Cd	27726.36	P	598.80	2.16
115 In	8116318.00	A	94660.00	1.17
115 In	2225681.00	A	121100.00	5.44
115 In	12476070.00	A	246200.00	1.97
118 Sn	86019.67	P	1859.00	2.16
121 Sb	13589.72	P	330.20	2.43
125 Te	4749.81	P	201.60	4.24
133 Cs	359512.50	P	10920.00	3.04
137 Ba	112764.60	P	2954.00	2.62
159 Tb	17267710.00	A	218100.00	1.26
205 Tl	245990.09	P	6900.00	2.81
206 (Pb)		P		
207 (Pb)		P		
208 Pb	872520.88	P	30320.00	3.48
209 Bi	20979900.00	A	205700.00	0.98
232 Th	362137.00	P	11830.00	3.27
238 U	363394.19	P	13160.00	3.62

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4662666.00	2.40	4711898.50	99.0	59.5 - 120.4	
45 Sc	6309599.50	1.16	6055604.50	104.2	59.5 - 120.4	
45 Sc	1162262.90	4.78	1212987.60	95.8	59.5 - 120.4	
45 Sc	14317086.00	2.48	14703928.00	97.4	59.5 - 120.4	
72 Ge	1708102.30	1.18	1663215.80	102.7	59.5 - 120.4	
72 Ge	489324.22	4.01	504855.03	96.9	59.5 - 120.4	
72 Ge	3505769.00	1.70	3627350.80	96.6	59.5 - 120.4	
74 Ge	2409366.30	0.80	2340971.80	102.9	59.5 - 120.4	
74 Ge	721097.31	3.66	744310.44	96.9	59.5 - 120.4	
74 Ge	4823231.50	1.70	4991163.50	96.6	59.5 - 120.4	
115 In	8116318.00	1.17	7865358.00	103.2	59.5 - 120.4	
115 In	2225681.50	5.44	2305247.80	96.5	59.5 - 120.4	
115 In	12476066.00	1.97	12889323.00	96.8	59.5 - 120.4	
159 Tb	17267706.00	1.26	17827088.00	96.9	59.5 - 120.4	
209 Bi	20979904.00	0.98	21523622.00	97.5	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\006CALS.D\006CALS.D#
Date Acquired: Mar 27 2017 10:04 am
Operator:
Sample Name: Level 4 Std
Misc Info:
Vial Number: 1305
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4704241.00	A	104700.00	2.23
9	Be	181598.41	P	8091.00	4.46
11	B	112807.60	P	1215.00	1.08
27	Al	3728260.00	A	197200.00	5.29
45	Sc	6300071.00	A	172200.00	2.73
45	Sc	1216212.00	A	26910.00	2.21
45	Sc	14369030.00	A	536600.00	3.73
51	V	165886.70	P	3081.00	1.86
52	Cr	170277.09	P	2551.00	1.50
55	Mn	1243918.00	A	41080.00	3.30
56	Fe	2147085.00	A	69190.00	3.22
59	Co	1034826.00	A	34480.00	3.33
60	Ni	156070.00	P	2324.00	1.49
63	Cu	432315.09	P	6100.00	1.41
66	Zn	678575.00	P	24120.00	3.55
72	Ge	1716096.00	A	41880.00	2.44
72	Ge	509584.81	P	9574.00	1.88
72	Ge	3550177.00	A	116900.00	3.29
74	Ge	2405892.00	A	61280.00	2.55
74	Ge	766335.31	M	39480.00	5.15
74	Ge	4905134.00	A	176800.00	3.60
75	As	21224.10	P	447.00	2.11
78	Se	28900.42	P	536.20	1.86
98	Mo	412240.00	P	16520.00	4.01
99	(Mo)		P		
106	Cd		P		
107	Ag	165987.80	P	5068.00	3.05
108	Cd		P		
111	Cd	136515.80	P	5586.00	4.09
115	In	8100672.00	A	255200.00	3.15
115	In	2297732.00	A	55640.00	2.42
115	In	12566210.00	A	409900.00	3.26
118	Sn	419935.09	P	16950.00	4.04
121	Sb	65528.60	P	2898.00	4.42
125	Te	23108.72	P	820.40	3.55
133	Cs	1942579.00	A	74970.00	3.86
137	Ba	552747.69	P	21340.00	3.86
159	Tb	17523070.00	A	574500.00	3.28
205	Tl	1395189.00	A	47290.00	3.39
206	(Pb)		A		
207	(Pb)		A		
208	Pb	4781696.00	A	173700.00	3.63
209	Bi	21282430.00	A	764700.00	3.59
232	Th	2052319.00	A	70790.00	3.45
238	U	2041653.00	A	71780.00	3.52

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	4704241.00	2.23	4711898.50	99.8	59.5 - 120.4	
45	Sc	6300071.00	2.73	6055604.50	104.0	59.5 - 120.4	
45	Sc	1216212.60	2.21	1212987.60	100.3	59.5 - 120.4	
45	Sc	14369033.00	3.73	14703928.00	97.7	59.5 - 120.4	
72	Ge	1716095.80	2.44	1663215.80	103.2	59.5 - 120.4	
72	Ge	509584.84	1.88	504855.03	100.9	59.5 - 120.4	
72	Ge	3550177.00	3.29	3627350.80	97.9	59.5 - 120.4	
74	Ge	2405892.00	2.55	2340971.80	102.8	59.5 - 120.4	
74	Ge	766335.31	5.15	744310.44	103.0	59.5 - 120.4	
74	Ge	4905134.00	3.60	4991163.50	98.3	59.5 - 120.4	
115	In	8100672.50	3.15	7865358.00	103.0	59.5 - 120.4	
115	In	2297731.80	2.42	2305247.80	99.7	59.5 - 120.4	
115	In	12566211.00	3.26	12889323.00	97.5	59.5 - 120.4	
159	Tb	17523072.00	3.28	17827088.00	98.3	59.5 - 120.4	
209	Bi	21282432.00	3.59	21523622.00	98.9	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\007CALS.D\007CALS.D#
Date Acquired: Mar 27 2017 10:07 am
Operator:
Sample Name: Level 5 Std
Misc Info:
Vial Number: 1306
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4746304.00	A	79160.00	1.67
9	Be	358244.00	P	14490.00	4.04
11	B	125509.30	P	2613.00	2.08
27	Al	7180993.00	A	373100.00	5.20
45	Sc	6143415.00	A	250900.00	4.08
45	Sc	1184819.00	A	17520.00	1.48
45	Sc	14507990.00	A	224200.00	1.55
51	V	346267.31	P	4178.00	1.21
52	Cr	361463.50	P	3121.00	0.86
55	Mn	2424067.00	A	69190.00	2.85
56	Fe	4536454.00	A	156700.00	3.45
59	Co	2054232.00	A	69780.00	3.40
60	Ni	331285.09	P	4349.00	1.31
63	Cu	976245.81	A	17670.00	1.81
66	Zn	1468341.00	A	50540.00	3.44
72	Ge	1665443.00	A	51070.00	3.07
72	Ge	493181.00	P	11560.00	2.34
72	Ge	3566413.00	A	61670.00	1.73
74	Ge	2355143.00	A	67170.00	2.85
74	Ge	732585.13	P	12130.00	1.66
74	Ge	4912567.00	A	91120.00	1.85
75	As	44874.22	P	776.90	1.73
78	Se	61634.57	P	864.00	1.40
98	Mo	850966.50	M	66750.00	7.84
99	(Mo)		P		
106	Cd		P		
107	Ag	324401.81	P	12740.00	3.93
108	Cd		P		
111	Cd	271185.91	P	11020.00	4.06
115	In	7918074.00	A	287900.00	3.64
115	In	2247431.00	A	25460.00	1.13
115	In	12696120.00	A	114700.00	0.90
118	Sn	821428.19	P	31670.00	3.86
121	Sb	128227.10	P	4916.00	3.83
125	Te	45475.24	P	1718.00	3.78
133	Cs	3769404.00	A	130900.00	3.47
137	Ba	1223921.00	A	49800.00	4.07
159	Tb	17720360.00	A	261500.00	1.48
205	Tl	2769244.00	A	93840.00	3.39
206	(Pb)		A		
207	(Pb)		A		
208	Pb	9412701.00	A	286800.00	3.05
209	Bi	21416880.00	A	454600.00	2.12
232	Th	3991696.00	A	132100.00	3.31
238	U	3967813.00	A	127500.00	3.21

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	4746304.50	1.67	4711898.50	100.7	59.5 - 120.4	
45	Sc	6143415.00	4.08	6055604.50	101.5	59.5 - 120.4	
45	Sc	1184818.50	1.48	1212987.60	97.7	59.5 - 120.4	
45	Sc	14507988.00	1.55	14703928.00	98.7	59.5 - 120.4	
72	Ge	1665443.30	3.07	1663215.80	100.1	59.5 - 120.4	
72	Ge	493180.97	2.34	504855.03	97.7	59.5 - 120.4	
72	Ge	3566413.30	1.73	3627350.80	98.3	59.5 - 120.4	
74	Ge	2355143.00	2.85	2340971.80	100.6	59.5 - 120.4	
74	Ge	732585.13	1.66	744310.44	98.4	59.5 - 120.4	
74	Ge	4912567.50	1.85	4991163.50	98.4	59.5 - 120.4	
115	In	7918074.00	3.64	7865358.00	100.7	59.5 - 120.4	
115	In	2247430.80	1.13	2305247.80	97.5	59.5 - 120.4	
115	In	12696122.00	0.90	12889323.00	98.5	59.5 - 120.4	
159	Tb	17720364.00	1.48	17827088.00	99.4	59.5 - 120.4	
209	Bi	21416876.00	2.12	21523622.00	99.5	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Initial Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\008_QCS.D\008_QCS.D#
Date Acquired: Mar 27 2017 10:10 am
Operator:
Sample Name: ICV
Misc Info:
Vial Number: 1307
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: QCS
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	50.060	1.78	50.00	100.1	89 - 110	
11 B	6	3	19.880	7.16	20.00	99.4	89 - 110	
27 Al	72	3	107.800	2.84	100.00	107.8	89 - 110	
51 V	45	2	50.190	1.27	50.00	100.4	89 - 110	
52 Cr	45	2	52.770	2.77	50.00	105.5	89 - 110	
55 Mn	72	3	47.150	1.31	50.00	94.3	89 - 110	
56 Fe	45	1	103.900	1.10	100.00	103.9	89 - 110	
59 Co	72	3	48.200	0.57	50.00	96.4	89 - 110	
60 Ni	45	2	54.040	3.34	50.00	108.1	89 - 110	
63 Cu	45	2	49.020	2.73	50.00	98.0	89 - 110	
66 Zn	72	3	48.430	0.79	50.00	96.9	89 - 110	
75 As	45	2	52.380	2.73	50.00	104.8	89 - 110	
78 Se	45	1	54.660	1.69	50.00	109.3	89 - 110	
98 Mo	115	3	19.350	1.29	20.00	96.8	89 - 110	
107 Ag	115	3	21.210	0.77	20.00	106.1	89 - 110	
111 Cd	115	3	52.390	0.49	50.00	104.8	89 - 110	
118 Sn	115	3	44.850	1.51	50.00	89.7	89 - 110	
121 Sb	115	3	19.300	0.78	20.00	96.5	89 - 110	
125 Te	115	3	51.100	2.11	50.00	102.2	89 - 110	
133 Cs	115	3	49.150	5.55	50.00	98.3	89 - 110	
137 Ba	115	3	47.380	1.22	50.00	94.8	89 - 110	
205 Tl	209	3	47.190	0.70	50.00	94.4	89 - 110	
208 Pb	209	3	47.550	0.72	50.00	95.1	89 - 110	
232 Th	209	3	47.990	8.01	50.00	96.0	89 - 110	
238 U	209	3	46.110	0.86	50.00	92.2	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	4704840	1.26	4711899	99.9	60 - 120	
45 Sc	1	6070490	0.84	6055605	100.2	60 - 120	
45 Sc	2	1186343	1.90	1212988	97.8	60 - 120	
45 Sc	3	14251188	1.71	14703928	96.9	60 - 120	
72 Ge	1	1650207	0.66	1663216	99.2	60 - 120	
72 Ge	2	492674	3.14	504855	97.6	60 - 120	
72 Ge	3	3501482	0.83	3627351	96.5	60 - 120	
74 Ge	1	2311544	0.64	2340972	98.7	60 - 120	
74 Ge	2	725374	2.71	744310	97.5	60 - 120	
74 Ge	3	4810780	1.16	4991164	96.4	60 - 120	
115 In	1	7800688	1.13	7865358	99.2	60 - 120	
115 In	2	2234152	2.50	2305248	96.9	60 - 120	
115 In	3	12419982	0.86	12889323	96.4	60 - 120	
159 Tb	3	17192994	0.61	17827088	96.4	60 - 120	
209 Bi	3	20762506	1.18	21523622	96.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\009_CCB.D\009_CCB.D#
Date Acquired: Mar 27 2017 10:13 am
Operator:
Sample Name: ICB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.058 ppb	24.83	0.150	
11 B	6	3	-4.486 ppb	34.57	1.500	
27 Al	72	3	0.164 ppb	113.56	3.000	
51 V	45	2	0.109 ppb	134.13	0.600	
52 Cr	45	2	0.004 ppb	193.92	1.500	
55 Mn	72	3	-0.124 ppb	17.24	1.500	
56 Fe	45	1	-0.187 ppb	22.06	12.000	
59 Co	72	3	0.012 ppb	90.25	0.150	
60 Ni	45	2	0.005 ppb	571.51	1.800	
63 Cu	45	2	-0.464 ppb	8.83	1.500	
66 Zn	72	3	-0.412 ppb	63.33	6.000	
75 As	45	2	0.088 ppb	243.99	0.600	
78 Se	45	1	0.164 ppb	2.93	0.300	
98 Mo	115	3	0.044 ppb	15.28	1.500	
107 Ag	115	3	0.010 ppb	98.58	0.150	
111 Cd	115	3	0.041 ppb	66.96	0.300	
118 Sn	115	3	0.119 ppb	9.07	0.300	
121 Sb	115	3	0.439 ppb	6.84	1.200	
125 Te	115	3	0.050 ppb	85.55	3.000	
133 Cs	115	3	0.023 ppb	28.75	0.600	
137 Ba	115	3	0.030 ppb	3.98	0.300	
205 Tl	209	3	0.030 ppb	5.96	0.300	
208 Pb	209	3	0.036 ppb	12.19	0.300	
232 Th	209	3	0.375 ppb	7.09	3.000	
238 U	209	3	0.019 ppb	6.62	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	4867632	3.71	4711899	103.3	60 - 120	
45 Sc	1	6010015	0.26	6055605	99.2	60 - 120	
45 Sc	2	1199422	2.18	1212988	98.9	60 - 120	
45 Sc	3	14600281	3.68	14703928	99.3	60 - 120	
72 Ge	1	1644943	0.61	1663216	98.9	60 - 120	
72 Ge	2	499432	2.67	504855	98.9	60 - 120	
72 Ge	3	3569053	2.07	3627351	98.4	60 - 120	
74 Ge	1	2310694	0.60	2340972	98.7	60 - 120	
74 Ge	2	751382	4.89	744310	101.0	60 - 120	
74 Ge	3	4936703	2.30	4991164	98.9	60 - 120	
115 In	1	7745846	0.33	7865358	98.5	60 - 120	
115 In	2	2267916	3.09	2305248	98.4	60 - 120	
115 In	3	12776571	3.66	12889323	99.1	60 - 120	
159 Tb	3	17576154	2.64	17827088	98.6	60 - 120	
209 Bi	3	21297430	2.37	21523622	98.9	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\010_CCB.D\010_CCB.D#
Date Acquired: Mar 27 2017 10:17 am
Operator:
Sample Name: ICSA
Misc Info:
Vial Number: 4510
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.019 ppb	18.83	0.150	
11 B	6	3	-0.182 ppb	399.62	1.500	
27 Al	72	3	51040.000 ppb	2.20	3.000	Fail
51 V	45	2	-0.686 ppb	21.92	0.600	
52 Cr	45	2	0.174 ppb	22.17	1.500	
55 Mn	72	3	0.489 ppb	3.99	1.500	
56 Fe	45	1	50110.000 ppb	0.63	12.000	Fail
59 Co	72	3	0.265 ppb	6.56	0.150	Fail
60 Ni	45	2	0.231 ppb	21.37	1.800	
63 Cu	45	2	-0.791 ppb	13.32	1.500	
66 Zn	72	3	-2.345 ppb	3.68	6.000	
75 As	45	2	0.138 ppb	138.58	0.600	
78 Se	45	1	0.089 ppb	36.78	0.300	
98 Mo	115	3	1070.000 ppb	0.47	1.500	Fail
107 Ag	115	3	0.074 ppb	7.92	0.150	
111 Cd	115	3	0.127 ppb	50.47	0.300	
118 Sn	115	3	-0.149 ppb	22.66	0.300	
121 Sb	115	3	0.295 ppb	1.33	1.200	
125 Te	115	3	-0.082 ppb	51.11	3.000	
133 Cs	115	3	0.021 ppb	9.70	0.600	
137 Ba	115	3	0.329 ppb	6.16	0.300	Fail
205 Tl	209	3	0.005 ppb	6.27	0.300	
208 Pb	209	3	0.052 ppb	10.78	0.300	
232 Th	209	3	0.343 ppb	4.79	3.000	
238 U	209	3	0.013 ppb	15.56	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	4519584	1.64	4711899	95.9	60 - 120	
45 Sc	1	6044434	1.12	6055605	99.8	60 - 120	
45 Sc	2	1139809	1.07	1212988	94.0	60 - 120	
45 Sc	3	14502176	2.24	14703928	98.6	60 - 120	
72 Ge	1	1651805	0.44	1663216	99.3	60 - 120	
72 Ge	2	476751	1.79	504855	94.4	60 - 120	
72 Ge	3	3512680	0.28	3627351	96.8	60 - 120	
74 Ge	1	2291434	0.76	2340972	97.9	60 - 120	
74 Ge	2	699358	1.78	744310	94.0	60 - 120	
74 Ge	3	4824325	1.20	4991164	96.7	60 - 120	
115 In	1	7506382	0.69	7865358	95.4	60 - 120	
115 In	2	2106216	1.39	2305248	91.4	60 - 120	
115 In	3	12308716	1.98	12889323	95.5	60 - 120	
159 Tb	3	17451536	1.21	17827088	97.9	60 - 120	
209 Bi	3	20137104	0.85	21523622	93.6	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

ICS-AB QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\011_ICS.D\011_ICS.D#
Date Acquired: Mar 27 2017 10:20 am
Acq. Method: ACZ.M
Operator:
Sample Name: ICSAB
Misc Info:
Vial Number: 4511
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: ICSAB
Dilution Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Be	6	3	19.19	1.56	20	96.0	79.5 - 120	
11 B	6	3	8.08	6.59	4	202.1	79.5 - 120	fail
27 Al	72	3	48550.00	1.90	50020	97.1	79.5 - 120	
51 V	45	2	18.53	3.13	20	92.7	79.5 - 120	
52 Cr	45	2	19.23	1.64	20	96.2	79.5 - 120	
55 Mn	72	3	18.05	1.77	20	90.3	79.5 - 120	
56 Fe	45	1	46860.00	1.75	49900	93.9	79.5 - 120	
59 Co	72	3	17.49	1.88	20	87.5	79.5 - 120	
60 Ni	45	2	19.05	3.21	20	95.3	79.5 - 120	
63 Cu	45	2	16.86	4.52	20	84.3	79.5 - 120	
66 Zn	72	3	14.93	3.43	20	74.7	79.5 - 120	fail
75 As	45	2	20.42	5.25	20	102.1	79.5 - 120	
78 Se	45	1	19.64	1.25	20	98.2	79.5 - 120	
98 Mo	115	3	1036.00	1.39	1020	101.6	79.5 - 120	
107 Ag	115	3	9.55	1.75	10	95.5	79.5 - 120	
111 Cd	115	3	19.93	1.33	20	99.7	79.5 - 120	
118 Sn	115	3	19.73	1.13	20	98.7	79.5 - 120	
121 Sb	115	3	10.79	2.27	10	107.9	79.5 - 120	
125 Te	115	3	20.10	0.53	20	100.5	79.5 - 120	
133 Cs	115	3	17.97	1.33	20	89.9	79.5 - 120	
137 Ba	115	3	19.83	1.97	20	99.2	79.5 - 120	
205 Tl	209	3	17.39	1.06	20	87.0	79.5 - 120	
208 Pb	209	3	17.67	0.99	20	88.4	79.5 - 120	
232 Th	209	3	46.69	0.89	20	233.5	79.5 - 120	fail
238 U	209	3	17.99	1.47	20	90.0	79.5 - 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	4685536	1.46	4711899	99.4	59.5 - 120	
45 Sc	1	6211749	0.86	6055605	102.6	59.5 - 120	
45 Sc	2	1185516	1.82	1212988	97.7	59.5 - 120	
45 Sc	3	14715250	1.56	14703928	100.1	59.5 - 120	
72 Ge	1	1698794	1.62	1663216	102.1	59.5 - 120	
72 Ge	2	497004	0.72	504855	98.4	59.5 - 120	
72 Ge	3	3569033	1.48	3627351	98.4	59.5 - 120	
74 Ge	1	2382211	0.32	2340972	101.8	59.5 - 120	
74 Ge	2	734577	0.76	744310	98.7	59.5 - 120	
74 Ge	3	4938674	1.47	4991164	98.9	59.5 - 120	
115 In	1	7808857	0.24	7865358	99.3	59.5 - 120	
115 In	2	2183287	1.57	2305248	94.7	59.5 - 120	
115 In	3	12456747	1.54	12889323	96.6	59.5 - 120	
159 Tb	3	17786038	1.08	17827088	99.8	59.5 - 120	
209 Bi	3	20325684	0.92	21523622	94.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

3 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\012_CCB.D\012_CCB.D#
Date Acquired: Mar 27 2017 10:23 am
Operator:
Sample Name: Wash
Misc Info:
Vial Number: 4512
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.034 ppb	35.93	0.150	
11 B	6	3	-6.001 ppb	10.63	1.500	
27 Al	72	3	6.675 ppb	10.86	3.000	Fail
51 V	45	2	-1.164 ppb	6.56	0.600	
52 Cr	45	2	-0.081 ppb	31.87	1.500	
55 Mn	72	3	-0.403 ppb	4.96	1.500	
56 Fe	45	1	34.380 ppb	30.16	12.000	Fail
59 Co	72	3	-0.013 ppb	24.39	0.150	
60 Ni	45	2	-0.019 ppb	60.83	1.800	
63 Cu	45	2	-0.554 ppb	26.62	1.500	
66 Zn	72	3	-5.640 ppb	1.78	6.000	
75 As	45	2	-0.150 ppb	35.99	0.600	
78 Se	45	1	-0.017 ppb	85.07	0.300	
98 Mo	115	3	0.551 ppb	11.96	1.500	
107 Ag	115	3	0.004 ppb	51.77	0.150	
111 Cd	115	3	0.006 ppb	251.32	0.300	
118 Sn	115	3	-0.184 ppb	7.87	0.300	
121 Sb	115	3	0.089 ppb	15.24	1.200	
125 Te	115	3	-0.069 ppb	65.64	3.000	
133 Cs	115	3	0.006 ppb	21.86	0.600	
137 Ba	115	3	0.007 ppb	239.00	0.300	
205 Tl	209	3	0.003 ppb	125.34	0.300	
208 Pb	209	3	0.007 ppb	19.68	0.300	
232 Th	209	3	0.057 ppb	6.59	3.000	
238 U	209	3	0.003 ppb	21.08	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	4753427	0.48	4711899	100.9	60 - 120	
45 Sc	1	6086861	1.44	6055605	100.5	60 - 120	
45 Sc	2	1180452	2.13	1212988	97.3	60 - 120	
45 Sc	3	14498321	1.57	14703928	98.6	60 - 120	
72 Ge	1	1674033	1.36	1663216	100.7	60 - 120	
72 Ge	2	505802	1.58	504855	100.2	60 - 120	
72 Ge	3	3563146	0.76	3627351	98.2	60 - 120	
74 Ge	1	2342613	1.19	2340972	100.1	60 - 120	
74 Ge	2	739757	0.95	744310	99.4	60 - 120	
74 Ge	3	4888943	0.91	4991164	98.0	60 - 120	
115 In	1	7902934	1.37	7865358	100.5	60 - 120	
115 In	2	2253418	1.65	2305248	97.8	60 - 120	
115 In	3	12594939	0.50	12889323	97.7	60 - 120	
159 Tb	3	17323040	0.59	17827088	97.2	60 - 120	
209 Bi	3	20871144	1.01	21523622	97.0	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\013SMPL.D\013SMPL.D#
Date Acquired: Mar 27 2017 10:26 am
Acq. Method: ACZ.M
Operator:
Sample Name: WG419750PBS
Misc Info:
Vial Number: 2101
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	7.995	0.016	ppb	41.53	200.00	
11 B	6	3	-1,766.500	-3.533	ppb	19.30	20.00	
27 Al	72	3	1,825.000	3.650	ppb	4.08	1000.00	
51 V	45	2	2,085.500	4.171	ppb	1.34	200.00	
52 Cr	45	2	105.500	0.211	ppb	9.25	200.00	
55 Mn	72	3	-10.080	-0.020	ppb	21.91	200.00	
56 Fe	45	1	2,675.500	5.351	ppb	0.84	1000.00	
59 Co	72	3	-3.098	-0.006	ppb	32.22	200.00	
60 Ni	45	2	51.600	0.103	ppb	21.57	500.00	
63 Cu	45	2	289.650	0.579	ppb	43.73	500.00	
66 Zn	72	3	17,905.000	35.810	ppb	1.86	1000.00	
75 As	45	2	328.700	0.657	ppb	40.33	200.00	
78 Se	45	1	88.900	0.178	ppb	11.82	500.00	
98 Mo	115	3	106.550	0.213	ppb	8.72	200.00	
107 Ag	115	3	1.965	0.004	ppb	127.00	50.00	
111 Cd	115	3	9.105	0.018	ppb	39.91	200.00	
118 Sn	115	3	4,208.000	8.416	ppb	1.88	200.00	
121 Sb	115	3	106.350	0.213	ppb	2.81	25.00	
125 Te	115	3	110.700	0.221	ppb	25.17	200.00	
133 Cs	115	3	4.714	0.009	ppb	11.61	200.00	
137 Ba	115	3	20.445	0.041	ppb	5.59	500.00	
205 Tl	209	3	0.152	0.000	ppb	456.34	200.00	
208 Pb	209	3	15.795	0.032	ppb	21.52	500.00	
232 Th	209	3	22.545	0.045	ppb	1.41	200.00	
238 U	209	3	1.201	0.002	ppb	53.27	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5002110	1.26	4711899	106.2	59.5 - 120	
45 Sc	1	5819926	1.24	6055605	96.1	59.5 - 120	
45 Sc	2	1134379	1.97	1212988	93.5	59.5 - 120	
45 Sc	3	14392433	1.35	14703928	97.9	59.5 - 120	
72 Ge	1	1578606	0.97	1663216	94.9	59.5 - 120	
72 Ge	2	472390	1.46	504855	93.6	59.5 - 120	
72 Ge	3	3473490	0.82	3627351	95.8	59.5 - 120	
74 Ge	1	2227568	0.50	2340972	95.2	59.5 - 120	
74 Ge	2	693810	2.35	744310	93.2	59.5 - 120	
74 Ge	3	4766908	0.21	4991164	95.5	59.5 - 120	
115 In	1	7529940	1.01	7865358	95.7	59.5 - 120	
115 In	2	2149700	1.58	2305248	93.3	59.5 - 120	
115 In	3	12408300	0.23	12889323	96.3	59.5 - 120	
159 Tb	3	17147604	0.89	17827088	96.2	59.5 - 120	
209 Bi	3	20420890	0.39	21523622	94.9	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\014SMPL.D\014SMPL.D#
Date Acquired: Mar 27 2017 10:29 am
Acq. Method: ACZ.M
Operator:
Sample Name: WG419750LCSS
Misc Info:
Vial Number: 2102
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 5000.00
Autodil Factor: Undiluted
Final Dil Factor: 5000.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	94,900.000	18.980	ppb	2.00	200.00	
11 B	6	3	97,300.000	19.460	ppb	7.02	20.00	
27 Al	72	3	##########	1831.000	ppb	1.62	1000.00	OCAL
51 V	45	2	##########	20.050	ppb	13.44	200.00	
52 Cr	45	2	##########	26.320	ppb	10.07	200.00	
55 Mn	72	3	##########	55.970	ppb	1.04	200.00	
56 Fe	45	1	##########	2946.000	ppb	2.64	1000.00	OCAL
59 Co	72	3	##########	29.270	ppb	1.71	200.00	
60 Ni	45	2	##########	25.230	ppb	9.28	500.00	
63 Cu	45	2	##########	29.810	ppb	10.23	500.00	
66 Zn	72	3	##########	35.890	ppb	1.06	1000.00	
75 As	45	2	##########	27.390	ppb	10.44	200.00	
78 Se	45	1	##########	34.660	ppb	0.86	500.00	
98 Mo	115	3	##########	22.960	ppb	1.23	200.00	
107 Ag	115	3	32,135.000	6.427	ppb	2.40	50.00	
111 Cd	115	3	89,750.000	17.950	ppb	2.53	200.00	
118 Sn	115	3	##########	29.750	ppb	1.25	200.00	
121 Sb	115	3	89,300.000	17.860	ppb	1.41	25.00	
125 Te	115	3	-409.600	-0.082	ppb	49.78	200.00	
133 Cs	115	3	1,390.000	0.278	ppb	3.48	200.00	
137 Ba	115	3	##########	38.190	ppb	2.01	500.00	
205 Tl	209	3	##########	25.330	ppb	2.22	200.00	
208 Pb	209	3	##########	26.760	ppb	1.48	500.00	
232 Th	209	3	19,530.000	3.906	ppb	2.00	200.00	
238 U	209	3	15,520.000	3.104	ppb	1.82	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5032669	1.60	4711899	106.8	59.5 - 120	
45 Sc	1	6430871	1.64	6055605	106.2	59.5 - 120	
45 Sc	2	1291848	6.63	1212988	106.5	59.5 - 120	
45 Sc	3	14995591	1.57	14703928	102.0	59.5 - 120	
72 Ge	1	1763598	2.07	1663216	106.0	59.5 - 120	
72 Ge	2	544955	7.33	504855	107.9	59.5 - 120	
72 Ge	3	3625710	0.90	3627351	100.0	59.5 - 120	
74 Ge	1	2440701	1.06	2340972	104.3	59.5 - 120	
74 Ge	2	831565	10.00	744310	111.7	59.5 - 120	
74 Ge	3	5011107	1.17	4991164	100.4	59.5 - 120	
115 In	1	8265315	1.65	7865358	105.1	59.5 - 120	
115 In	2	2417975	6.43	2305248	104.9	59.5 - 120	
115 In	3	12948151	1.10	12889323	100.5	59.5 - 120	
159 Tb	3	17830026	1.48	17827088	100.0	59.5 - 120	
209 Bi	3	21173772	1.32	21523622	98.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\015SMPL.D\015SMPL.D#
Date Acquired: Mar 27 2017 10:32 am
Acq. Method: ACZ.M
Operator:
Sample Name: WG419750LCSSD
Misc Info:
Vial Number: 2103
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 5000.00
Autodil Factor: Undiluted
Final Dil Factor: 5000.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	89,050.000	17.810	ppb	3.39	200.00	
11 B	6	3	83,850.000	16.770	ppb	8.53	20.00	
27 Al	72	3	##########	1672.000	ppb	5.22	1000.00	OCAL
51 V	45	2	##########	21.040	ppb	2.90	200.00	
52 Cr	45	2	##########	27.660	ppb	1.78	200.00	
55 Mn	72	3	##########	54.090	ppb	4.15	200.00	
56 Fe	45	1	##########	2936.000	ppb	0.79	1000.00	OCAL
59 Co	72	3	##########	28.140	ppb	3.25	200.00	
60 Ni	45	2	##########	27.030	ppb	1.82	500.00	
63 Cu	45	2	##########	30.540	ppb	2.66	500.00	
66 Zn	72	3	##########	31.650	ppb	2.85	1000.00	
75 As	45	2	##########	27.270	ppb	2.76	200.00	
78 Se	45	1	##########	35.770	ppb	1.07	500.00	
98 Mo	115	3	##########	22.750	ppb	2.72	200.00	
107 Ag	115	3	29,195.000	5.839	ppb	3.29	50.00	
111 Cd	115	3	86,500.000	17.300	ppb	3.75	200.00	
118 Sn	115	3	##########	28.450	ppb	3.67	200.00	
121 Sb	115	3	91,150.000	18.230	ppb	3.31	25.00	
125 Te	115	3	-313.950	-0.063	ppb	60.87	200.00	
133 Cs	115	3	1,235.500	0.247	ppb	3.85	200.00	
137 Ba	115	3	##########	34.990	ppb	3.49	500.00	
205 Tl	209	3	##########	24.240	ppb	1.99	200.00	
208 Pb	209	3	##########	24.850	ppb	2.51	500.00	
232 Th	209	3	17,390.000	3.478	ppb	2.17	200.00	
238 U	209	3	15,080.000	3.016	ppb	2.30	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5125895	0.38	4711899	108.8	59.5 - 120	
45 Sc	1	6158579	0.45	6055605	101.7	59.5 - 120	
45 Sc	2	1217132	3.26	1212988	100.3	59.5 - 120	
45 Sc	3	15123293	1.17	14703928	102.9	59.5 - 120	
72 Ge	1	1660118	1.17	1663216	99.8	59.5 - 120	
72 Ge	2	511317	3.55	504855	101.3	59.5 - 120	
72 Ge	3	3675655	0.90	3627351	101.3	59.5 - 120	
74 Ge	1	2347656	0.65	2340972	100.3	59.5 - 120	
74 Ge	2	754364	2.41	744310	101.4	59.5 - 120	
74 Ge	3	5044055	0.45	4991164	101.1	59.5 - 120	
115 In	1	7921179	1.13	7865358	100.7	59.5 - 120	
115 In	2	2283880	3.94	2305248	99.1	59.5 - 120	
115 In	3	12960810	0.55	12889323	100.6	59.5 - 120	
159 Tb	3	17828738	0.45	17827088	100.0	59.5 - 120	
209 Bi	3	21370182	0.53	21523622	99.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\016SMPL.D\016SMPL.D#
Date Acquired: Mar 27 2017 10:35 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-01
Misc Info:
Vial Number: 2104
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	492.527	0.975	ppb	1.67	200.00	
11 B	6	3	17,639.650	34.930	ppb	1.75	20.00	OCAL
27 Al	72	3	##########	12950.000	ppb	2.05	1000.00	OCAL
51 V	45	2	41,142.350	81.470	ppb	8.22	200.00	
52 Cr	45	2	##########	213.500	ppb	7.56	200.00	OCAL
55 Mn	72	3	80,901.000	160.200	ppb	0.64	200.00	
56 Fe	45	1	##########	27500.000	ppb	6.04	1000.00	OCAL
59 Co	72	3	8,276.950	16.390	ppb	0.64	200.00	
60 Ni	45	2	##########	212.800	ppb	7.78	500.00	
63 Cu	45	2	85,496.500	169.300	ppb	7.90	500.00	
66 Zn	72	3	##########	878.800	ppb	0.71	1000.00	
75 As	45	2	11,700.850	23.170	ppb	8.05	200.00	
78 Se	45	1	15,700.450	31.090	ppb	4.31	500.00	
98 Mo	115	3	8,160.800	16.160	ppb	0.92	200.00	
107 Ag	115	3	172.458	0.342	ppb	3.26	50.00	
111 Cd	115	3	1,637.210	3.242	ppb	3.79	200.00	
118 Sn	115	3	4,976.775	9.855	ppb	1.30	200.00	
121 Sb	115	3	677.710	1.342	ppb	2.54	25.00	
125 Te	115	3	146.602	0.290	ppb	4.84	200.00	
133 Cs	115	3	1,443.290	2.858	ppb	0.49	200.00	
137 Ba	115	3	52,318.000	103.600	ppb	0.35	500.00	
205 Tl	209	3	511.060	1.012	ppb	2.37	200.00	
208 Pb	209	3	5,661.050	11.210	ppb	0.12	500.00	
232 Th	209	3	3,886.480	7.696	ppb	1.35	200.00	
238 U	209	3	6,514.500	12.900	ppb	1.19	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5039925	1.29	4711899	107.0	59.5 - 120	
45 Sc	1	6330265	3.44	6055605	104.5	59.5 - 120	
45 Sc	2	1139539	6.05	1212988	93.9	59.5 - 120	
45 Sc	3	14553635	1.29	14703928	99.0	59.5 - 120	
72 Ge	1	1679596	3.30	1663216	101.0	59.5 - 120	
72 Ge	2	480049	4.41	504855	95.1	59.5 - 120	
72 Ge	3	3474250	0.63	3627351	95.8	59.5 - 120	
74 Ge	1	2371022	1.98	2340972	101.3	59.5 - 120	
74 Ge	2	701475	4.67	744310	94.2	59.5 - 120	
74 Ge	3	4750123	0.82	4991164	95.2	59.5 - 120	
115 In	1	8025103	2.75	7865358	102.0	59.5 - 120	
115 In	2	2142870	6.20	2305248	93.0	59.5 - 120	
115 In	3	12300129	0.53	12889323	95.4	59.5 - 120	
159 Tb	3	17110372	0.60	17827088	96.0	59.5 - 120	
209 Bi	3	20424318	1.24	21523622	94.9	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\017SMPL.D\017SMPL.D#
Date Acquired: Mar 27 2017 10:38 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-01MS
Misc Info:
Vial Number: 2105
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	27,840.650	55.130	ppb	0.72	200.00	
11 B	6	3	26,234.750	51.950	ppb	1.17	20.00	OCAL
27 Al	72	3	##########	15210.000	ppb	2.14	1000.00	OCAL
51 V	45	2	73,326.000	145.200	ppb	0.20	200.00	
52 Cr	45	2	##########	316.400	ppb	0.33	200.00	OCAL
55 Mn	72	3	##########	220.600	ppb	0.70	200.00	OCAL
56 Fe	45	1	##########	32910.000	ppb	1.98	1000.00	OCAL
59 Co	72	3	33,173.450	65.690	ppb	0.83	200.00	
60 Ni	45	2	##########	277.900	ppb	0.53	500.00	
63 Cu	45	2	##########	231.200	ppb	0.31	500.00	
66 Zn	72	3	##########	961.200	ppb	0.45	1000.00	
75 As	45	2	41,233.250	81.650	ppb	0.43	200.00	
78 Se	45	1	32,623.000	64.600	ppb	0.85	500.00	
98 Mo	115	3	32,895.700	65.140	ppb	1.25	200.00	
107 Ag	115	3	5,751.950	11.390	ppb	0.43	50.00	
111 Cd	115	3	29,153.650	57.730	ppb	0.57	200.00	
118 Sn	115	3	20,715.100	41.020	ppb	0.28	200.00	
121 Sb	115	3	1,717.000	3.400	ppb	0.46	25.00	
125 Te	115	3	13,165.350	26.070	ppb	1.76	200.00	
133 Cs	115	3	11,690.750	23.150	ppb	0.34	200.00	
137 Ba	115	3	79,436.500	157.300	ppb	1.01	500.00	
205 Tl	209	3	24,154.150	47.830	ppb	0.35	200.00	
208 Pb	209	3	29,976.800	59.360	ppb	0.32	500.00	
232 Th	209	3	12,291.700	24.340	ppb	0.28	200.00	
238 U	209	3	19,089.000	37.800	ppb	0.47	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5079015	0.38	4711899	107.8	59.5 - 120	
45 Sc	1	5938952	0.39	6055605	98.1	59.5 - 120	
45 Sc	2	1124145	1.05	1212988	92.7	59.5 - 120	
45 Sc	3	14587373	1.33	14703928	99.2	59.5 - 120	
72 Ge	1	1591467	1.10	1663216	95.7	59.5 - 120	
72 Ge	2	466208	2.05	504855	92.3	59.5 - 120	
72 Ge	3	3460883	0.41	3627351	95.4	59.5 - 120	
74 Ge	1	2228094	0.57	2340972	95.2	59.5 - 120	
74 Ge	2	685733	1.80	744310	92.1	59.5 - 120	
74 Ge	3	4741544	0.07	4991164	95.0	59.5 - 120	
115 In	1	7542552	0.87	7865358	95.9	59.5 - 120	
115 In	2	2097352	2.02	2305248	91.0	59.5 - 120	
115 In	3	12352636	0.31	12889323	95.8	59.5 - 120	
159 Tb	3	17142682	0.60	17827088	96.2	59.5 - 120	
209 Bi	3	20432224	0.73	21523622	94.9	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\018SMPL.D\018SMPL.D#
Date Acquired: Mar 27 2017 10:41 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-01MSD
Misc Info:
Vial Number: 2106
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	27,744.700	54.940	ppb	2.00	200.00	
11 B	6	3	24,027.900	47.580	ppb	4.61	20.00	OCAL
27 Al	72	3	##########	14460.000	ppb	0.39	1000.00	OCAL
51 V	45	2	72,417.000	143.400	ppb	0.78	200.00	
52 Cr	45	2	##########	304.800	ppb	0.24	200.00	OCAL
55 Mn	72	3	##########	216.800	ppb	0.29	200.00	OCAL
56 Fe	45	1	##########	32990.000	ppb	1.52	1000.00	OCAL
59 Co	72	3	32,830.050	65.010	ppb	0.93	200.00	
60 Ni	45	2	##########	277.600	ppb	1.00	500.00	
63 Cu	45	2	##########	230.100	ppb	0.17	500.00	
66 Zn	72	3	##########	945.500	ppb	0.57	1000.00	
75 As	45	2	40,627.250	80.450	ppb	1.00	200.00	
78 Se	45	1	32,713.900	64.780	ppb	2.85	500.00	
98 Mo	115	3	32,734.100	64.820	ppb	1.33	200.00	
107 Ag	115	3	5,681.250	11.250	ppb	1.49	50.00	
111 Cd	115	3	28,987.000	57.400	ppb	0.88	200.00	
118 Sn	115	3	20,442.400	40.480	ppb	1.97	200.00	
121 Sb	115	3	1,676.095	3.319	ppb	2.89	25.00	
125 Te	115	3	12,630.050	25.010	ppb	2.40	200.00	
133 Cs	115	3	11,569.550	22.910	ppb	1.62	200.00	
137 Ba	115	3	77,164.000	152.800	ppb	2.39	500.00	
205 Tl	209	3	24,093.550	47.710	ppb	0.65	200.00	
208 Pb	209	3	29,926.300	59.260	ppb	0.85	500.00	
232 Th	209	3	12,140.200	24.040	ppb	1.39	200.00	
238 U	209	3	18,876.900	37.380	ppb	1.49	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5185644	1.73	4711899	110.1	59.5 - 120	
45 Sc	1	5928595	1.33	6055605	97.9	59.5 - 120	
45 Sc	2	1139265	2.43	1212988	93.9	59.5 - 120	
45 Sc	3	14885375	1.22	14703928	101.2	59.5 - 120	
72 Ge	1	1615285	0.50	1663216	97.1	59.5 - 120	
72 Ge	2	473888	1.86	504855	93.9	59.5 - 120	
72 Ge	3	3537177	0.58	3627351	97.5	59.5 - 120	
74 Ge	1	2229904	1.22	2340972	95.3	59.5 - 120	
74 Ge	2	698565	2.08	744310	93.9	59.5 - 120	
74 Ge	3	4850507	0.59	4991164	97.2	59.5 - 120	
115 In	1	7531933	1.48	7865358	95.8	59.5 - 120	
115 In	2	2141217	2.38	2305248	92.9	59.5 - 120	
115 In	3	12603022	1.01	12889323	97.8	59.5 - 120	
159 Tb	3	17494756	0.56	17827088	98.1	59.5 - 120	
209 Bi	3	20771448	0.68	21523622	96.5	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\019SMPL.D\019SMPL.D#
Date Acquired: Mar 27 2017 10:44 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-02
Misc Info:
Vial Number: 2107
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,057.000	2.114	ppb	4.08	200.00	
11 B	6	3	15,670.000	31.340	ppb	3.78	20.00	OCAL
27 Al	72	3	##########	21640.000	ppb	3.08	1000.00	OCAL
51 V	45	2	81,100.000	162.200	ppb	1.43	200.00	
52 Cr	45	2	##########	367.900	ppb	1.43	200.00	OCAL
55 Mn	72	3	42,355.000	84.710	ppb	1.80	200.00	
56 Fe	45	1	##########	69760.000	ppb	2.86	1000.00	OCAL
59 Co	72	3	2,650.500	5.301	ppb	2.78	200.00	
60 Ni	45	2	71,000.000	142.000	ppb	1.74	500.00	
63 Cu	45	2	95,800.000	191.600	ppb	2.04	500.00	
66 Zn	72	3	##########	375.300	ppb	1.95	1000.00	
75 As	45	2	26,635.000	53.270	ppb	3.40	200.00	
78 Se	45	1	23,645.000	47.290	ppb	1.57	500.00	
98 Mo	115	3	5,835.000	11.670	ppb	2.60	200.00	
107 Ag	115	3	248.900	0.498	ppb	2.19	50.00	
111 Cd	115	3	1,873.000	3.746	ppb	2.98	200.00	
118 Sn	115	3	4,880.000	9.760	ppb	2.27	200.00	
121 Sb	115	3	1,227.500	2.455	ppb	1.40	25.00	
125 Te	115	3	116.950	0.234	ppb	25.42	200.00	
133 Cs	115	3	1,298.500	2.597	ppb	2.51	200.00	
137 Ba	115	3	70,350.000	140.700	ppb	2.32	500.00	
205 Tl	209	3	284.100	0.568	ppb	1.18	200.00	
208 Pb	209	3	6,275.000	12.550	ppb	2.87	500.00	
232 Th	209	3	4,082.000	8.164	ppb	2.47	200.00	
238 U	209	3	36,565.000	73.130	ppb	2.30	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5406881	2.61	4711899	114.7	59.5 - 120	
45 Sc	1	6103138	1.32	6055605	100.8	59.5 - 120	
45 Sc	2	1169318	1.29	1212988	96.4	59.5 - 120	
45 Sc	3	15395845	1.25	14703928	104.7	59.5 - 120	
72 Ge	1	1645485	1.09	1663216	98.9	59.5 - 120	
72 Ge	2	481968	1.48	504855	95.5	59.5 - 120	
72 Ge	3	3650445	1.01	3627351	100.6	59.5 - 120	
74 Ge	1	2289564	0.31	2340972	97.8	59.5 - 120	
74 Ge	2	711528	0.91	744310	95.6	59.5 - 120	
74 Ge	3	4968460	1.14	4991164	99.5	59.5 - 120	
115 In	1	7761851	0.48	7865358	98.7	59.5 - 120	
115 In	2	2172870	1.70	2305248	94.3	59.5 - 120	
115 In	3	12900923	1.36	12889323	100.1	59.5 - 120	
159 Tb	3	17887868	1.60	17827088	100.3	59.5 - 120	
209 Bi	3	21127664	0.89	21523622	98.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\020SMPL.D\020SMPL.D#
Date Acquired: Mar 27 2017 10:47 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-03
Misc Info:
Vial Number: 2108
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	516.000	1.032	ppb	3.06	200.00	
11 B	6	3	15,040.000	30.080	ppb	5.17	20.00	OCAL
27 Al	72	3	##########	13480.000	ppb	0.72	1000.00	OCAL
51 V	45	2	27,565.000	55.130	ppb	1.93	200.00	
52 Cr	45	2	##########	297.900	ppb	2.33	200.00	OCAL
55 Mn	72	3	##########	298.800	ppb	1.72	200.00	OCAL
56 Fe	45	1	##########	22550.000	ppb	3.01	1000.00	OCAL
59 Co	72	3	8,020.000	16.040	ppb	0.81	200.00	
60 Ni	45	2	62,600.000	125.200	ppb	3.03	500.00	
63 Cu	45	2	29,320.000	58.640	ppb	3.09	500.00	
66 Zn	72	3	##########	354.700	ppb	0.53	1000.00	
75 As	45	2	6,660.000	13.320	ppb	4.70	200.00	
78 Se	45	1	2,792.500	5.585	ppb	5.63	500.00	
98 Mo	115	3	1,408.500	2.817	ppb	1.80	200.00	
107 Ag	115	3	89.150	0.178	ppb	6.97	50.00	
111 Cd	115	3	880.500	1.761	ppb	5.52	200.00	
118 Sn	115	3	4,498.500	8.997	ppb	0.54	200.00	
121 Sb	115	3	325.550	0.651	ppb	1.21	25.00	
125 Te	115	3	67.600	0.135	ppb	41.81	200.00	
133 Cs	115	3	901.000	1.802	ppb	0.88	200.00	
137 Ba	115	3	28,030.000	56.060	ppb	0.85	500.00	
205 Tl	209	3	173.100	0.346	ppb	1.06	200.00	
208 Pb	209	3	3,765.500	7.531	ppb	0.92	500.00	
232 Th	209	3	2,959.500	5.919	ppb	1.35	200.00	
238 U	209	3	2,652.000	5.304	ppb	1.09	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5216336	1.85	4711899	110.7	59.5 - 120	
45 Sc	1	5894601	2.32	6055605	97.3	59.5 - 120	
45 Sc	2	1139318	3.90	1212988	93.9	59.5 - 120	
45 Sc	3	15002950	1.76	14703928	102.0	59.5 - 120	
72 Ge	1	1591058	0.34	1663216	95.7	59.5 - 120	
72 Ge	2	476828	3.87	504855	94.4	59.5 - 120	
72 Ge	3	3548717	0.49	3627351	97.8	59.5 - 120	
74 Ge	1	2208077	1.63	2340972	94.3	59.5 - 120	
74 Ge	2	698496	4.04	744310	93.8	59.5 - 120	
74 Ge	3	4902912	0.66	4991164	98.2	59.5 - 120	
115 In	1	7526218	2.36	7865358	95.7	59.5 - 120	
115 In	2	2129075	4.25	2305248	92.4	59.5 - 120	
115 In	3	12666326	1.01	12889323	98.3	59.5 - 120	
159 Tb	3	17584716	0.29	17827088	98.6	59.5 - 120	
209 Bi	3	20792868	0.61	21523622	96.6	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\021SMPL.D\021SMPL.D#
Date Acquired: Mar 27 2017 10:50 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-04
Misc Info:
Vial Number: 2109
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	522.500	1.045	ppb	3.24	200.00	
11 B	6	3	19,990.000	39.980	ppb	1.81	20.00	OCAL
27 Al	72	3	##########	14250.000	ppb	2.75	1000.00	OCAL
51 V	45	2	20,960.000	41.920	ppb	4.16	200.00	
52 Cr	45	2	##########	287.500	ppb	5.48	200.00	OCAL
55 Mn	72	3	##########	292.300	ppb	2.49	200.00	OCAL
56 Fe	45	1	##########	24030.000	ppb	0.70	1000.00	OCAL
59 Co	72	3	6,105.000	12.210	ppb	1.92	200.00	
60 Ni	45	2	64,350.000	128.700	ppb	5.05	500.00	
63 Cu	45	2	22,005.000	44.010	ppb	4.47	500.00	
66 Zn	72	3	##########	254.100	ppb	2.28	1000.00	
75 As	45	2	5,755.000	11.510	ppb	0.96	200.00	
78 Se	45	1	9,655.000	19.310	ppb	1.82	500.00	
98 Mo	115	3	1,760.500	3.521	ppb	1.97	200.00	
107 Ag	115	3	216.200	0.432	ppb	3.26	50.00	
111 Cd	115	3	1,125.500	2.251	ppb	5.94	200.00	
118 Sn	115	3	4,598.500	9.197	ppb	2.95	200.00	
121 Sb	115	3	201.400	0.403	ppb	4.56	25.00	
125 Te	115	3	104.650	0.209	ppb	43.41	200.00	
133 Cs	115	3	1,077.500	2.155	ppb	3.29	200.00	
137 Ba	115	3	24,790.000	49.580	ppb	2.17	500.00	
205 Tl	209	3	138.250	0.277	ppb	1.94	200.00	
208 Pb	209	3	3,530.000	7.060	ppb	1.73	500.00	
232 Th	209	3	3,668.000	7.336	ppb	1.01	200.00	
238 U	209	3	2,707.000	5.414	ppb	1.78	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5173028	1.47	4711899	109.8	59.5 - 120	
45 Sc	1	5900939	0.52	6055605	97.4	59.5 - 120	
45 Sc	2	1152751	3.42	1212988	95.0	59.5 - 120	
45 Sc	3	14978531	2.37	14703928	101.9	59.5 - 120	
72 Ge	1	1592716	0.19	1663216	95.8	59.5 - 120	
72 Ge	2	487533	3.15	504855	96.6	59.5 - 120	
72 Ge	3	3566998	1.86	3627351	98.3	59.5 - 120	
74 Ge	1	2241240	0.39	2340972	95.7	59.5 - 120	
74 Ge	2	715592	3.23	744310	96.1	59.5 - 120	
74 Ge	3	4886292	0.45	4991164	97.9	59.5 - 120	
115 In	1	7535557	0.33	7865358	95.8	59.5 - 120	
115 In	2	2178172	4.21	2305248	94.5	59.5 - 120	
115 In	3	12589476	2.23	12889323	97.7	59.5 - 120	
159 Tb	3	17528844	1.48	17827088	98.3	59.5 - 120	
209 Bi	3	20552336	1.14	21523622	95.5	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\022SMPL.D\022SMPL.D#
Date Acquired: Mar 27 2017 10:53 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-04SDL
Misc Info:
Vial Number: 2110
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	100.000	0.200	ppb	6.74	200.00	
11 B	6	3	-1,613.500	-3.227	ppb	32.54	20.00	
27 Al	72	3	##########	2789.000	ppb	2.15	1000.00	OCAL
51 V	45	2	3,961.000	7.922	ppb	1.23	200.00	
52 Cr	45	2	30,540.000	61.080	ppb	0.42	200.00	
55 Mn	72	3	26,435.000	52.870	ppb	1.27	200.00	
56 Fe	45	1	##########	4830.000	ppb	2.56	1000.00	OCAL
59 Co	72	3	1,200.500	2.401	ppb	1.93	200.00	
60 Ni	45	2	13,805.000	27.610	ppb	0.72	500.00	
63 Cu	45	2	4,649.500	9.299	ppb	3.10	500.00	
66 Zn	72	3	21,740.000	43.480	ppb	1.18	1000.00	
75 As	45	2	1,189.500	2.379	ppb	7.91	200.00	
78 Se	45	1	1,986.500	3.973	ppb	4.76	500.00	
98 Mo	115	3	330.500	0.661	ppb	1.16	200.00	
107 Ag	115	3	38.165	0.076	ppb	7.92	50.00	
111 Cd	115	3	217.550	0.435	ppb	5.98	200.00	
118 Sn	115	3	775.000	1.550	ppb	0.81	200.00	
121 Sb	115	3	21.955	0.044	ppb	12.61	25.00	
125 Te	115	3	-29.985	-0.060	ppb	71.97	200.00	
133 Cs	115	3	203.750	0.408	ppb	3.58	200.00	
137 Ba	115	3	4,758.000	9.516	ppb	3.71	500.00	
205 Tl	209	3	26.525	0.053	ppb	10.32	200.00	
208 Pb	209	3	680.000	1.360	ppb	1.51	500.00	
232 Th	209	3	691.000	1.382	ppb	0.78	200.00	
238 U	209	3	520.500	1.041	ppb	2.34	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5370943	2.00	4711899	114.0	59.5 - 120	
45 Sc	1	6235354	2.33	6055605	103.0	59.5 - 120	
45 Sc	2	1162041	1.89	1212988	95.8	59.5 - 120	
45 Sc	3	15338035	1.94	14703928	104.3	59.5 - 120	
72 Ge	1	1698060	0.68	1663216	102.1	59.5 - 120	
72 Ge	2	493263	1.69	504855	97.7	59.5 - 120	
72 Ge	3	3686509	1.31	3627351	101.6	59.5 - 120	
74 Ge	1	2386772	1.22	2340972	102.0	59.5 - 120	
74 Ge	2	731000	2.06	744310	98.2	59.5 - 120	
74 Ge	3	5105577	0.78	4991164	102.3	59.5 - 120	
115 In	1	8116165	2.75	7865358	103.2	59.5 - 120	
115 In	2	2190357	2.03	2305248	95.0	59.5 - 120	
115 In	3	13158742	1.89	12889323	102.1	59.5 - 120	
159 Tb	3	17846708	0.81	17827088	100.1	59.5 - 120	
209 Bi	3	21354554	0.32	21523622	99.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\023_CCV.D\023_CCV.D#
Date Acquired: Mar 27 2017 10:56 am
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1305
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	102.000	1.92	100.00	102.0	89 - 110	
11 B	6	3	-2.299	20.09	10.00	-23.0	89 - 110	Fail
27 Al	72	3	560.400	1.74	500.00	112.1	89 - 110	Fail
51 V	45	2	107.400	2.12	100.00	107.4	89 - 110	
52 Cr	45	2	108.600	2.66	100.00	108.6	89 - 110	
55 Mn	72	3	104.800	2.31	100.00	104.8	89 - 110	
56 Fe	45	1	571.800	3.12	500.00	114.4	89 - 110	Fail
59 Co	72	3	103.000	1.72	100.00	103.0	89 - 110	
60 Ni	45	2	272.500	2.55	250.00	109.0	89 - 110	
63 Cu	45	2	256.600	2.35	250.00	102.6	89 - 110	
66 Zn	72	3	483.100	1.34	500.00	96.6	89 - 110	
75 As	45	2	108.900	3.42	100.00	108.9	89 - 110	
78 Se	45	1	278.900	2.49	250.00	111.6	89 - 110	Fail
98 Mo	115	3	99.890	1.88	100.00	99.9	89 - 110	
107 Ag	115	3	26.150	1.25	25.00	104.6	89 - 110	
111 Cd	115	3	103.500	1.43	100.00	103.5	89 - 110	
118 Sn	115	3	103.300	2.15	100.00	103.3	89 - 110	
121 Sb	115	3	12.900	1.80	12.50	103.2	89 - 110	
125 Te	115	3	101.800	1.64	100.00	101.8	89 - 110	
133 Cs	115	3	102.200	1.23	100.00	102.2	89 - 110	
137 Ba	115	3	230.100	2.04	250.00	92.0	89 - 110	
205 Tl	209	3	102.700	2.06	100.00	102.7	89 - 110	
208 Pb	209	3	257.700	1.07	250.00	103.1	89 - 110	
232 Th	209	3	104.000	1.71	100.00	104.0	89 - 110	
238 U	209	3	103.700	1.83	100.00	103.7	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5377849	1.02	4711899	114.1	60 - 120	
45 Sc	1	6070169	1.97	6055605	100.2	60 - 120	
45 Sc	2	1175179	3.07	1212988	96.9	60 - 120	
45 Sc	3	15395678	1.15	14703928	104.7	60 - 120	
72 Ge	1	1619044	2.11	1663216	97.3	60 - 120	
72 Ge	2	494054	2.57	504855	97.9	60 - 120	
72 Ge	3	3664091	1.04	3627351	101.0	60 - 120	
74 Ge	1	2279589	1.06	2340972	97.4	60 - 120	
74 Ge	2	730059	2.98	744310	98.1	60 - 120	
74 Ge	3	5022736	1.01	4991164	100.6	60 - 120	
115 In	1	7832188	1.35	7865358	99.6	60 - 120	
115 In	2	2209506	2.80	2305248	95.8	60 - 120	
115 In	3	13034406	0.70	12889323	101.1	60 - 120	
159 Tb	3	17752334	0.91	17827088	99.6	60 - 120	
209 Bi	3	21342624	1.36	21523622	99.2	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

4 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\024_CCB.D\024_CCB.D#
Date Acquired: Mar 27 2017 10:59 am
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.064 ppb	22.37	0.150	
11 B	6	3	-12.000 ppb	1.52	1.500	
27 Al	72	3	1.198 ppb	14.93	3.000	
51 V	45	2	0.095 ppb	180.91	0.600	
52 Cr	45	2	0.012 ppb	125.60	1.500	
55 Mn	72	3	-0.473 ppb	0.38	1.500	
56 Fe	45	1	2.733 ppb	5.26	12.000	
59 Co	72	3	-0.009 ppb	64.12	0.150	
60 Ni	45	2	0.058 ppb	55.09	1.800	
63 Cu	45	2	-0.241 ppb	81.55	1.500	
66 Zn	72	3	0.489 ppb	20.25	6.000	
75 As	45	2	-0.048 ppb	416.54	0.600	
78 Se	45	1	0.169 ppb	20.09	0.300	
98 Mo	115	3	0.045 ppb	40.98	1.500	
107 Ag	115	3	0.005 ppb	45.98	0.150	
111 Cd	115	3	0.023 ppb	7.01	0.300	
118 Sn	115	3	0.076 ppb	26.62	0.300	
121 Sb	115	3	0.222 ppb	4.91	1.200	
125 Te	115	3	-0.071 ppb	45.52	3.000	
133 Cs	115	3	0.019 ppb	15.75	0.600	
137 Ba	115	3	0.040 ppb	44.49	0.300	
205 Tl	209	3	0.021 ppb	16.66	0.300	
208 Pb	209	3	0.034 ppb	15.31	0.300	
232 Th	209	3	0.160 ppb	7.65	3.000	
238 U	209	3	0.014 ppb	7.43	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5299312	1.54	4711899	112.5	60 - 120	
45 Sc	1	5885728	0.85	6055605	97.2	60 - 120	
45 Sc	2	1140651	1.75	1212988	94.0	60 - 120	
45 Sc	3	15022255	1.49	14703928	102.2	60 - 120	
72 Ge	1	1598798	0.82	1663216	96.1	60 - 120	
72 Ge	2	484928	1.36	504855	96.1	60 - 120	
72 Ge	3	3582161	0.42	3627351	98.8	60 - 120	
74 Ge	1	2251714	0.99	2340972	96.2	60 - 120	
74 Ge	2	712656	0.91	744310	95.7	60 - 120	
74 Ge	3	4954209	0.55	4991164	99.3	60 - 120	
115 In	1	7616973	0.71	7865358	96.8	60 - 120	
115 In	2	2145840	1.76	2305248	93.1	60 - 120	
115 In	3	12836117	0.74	12889323	99.6	60 - 120	
159 Tb	3	17335940	0.81	17827088	97.2	60 - 120	
209 Bi	3	20766304	0.24	21523622	96.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\025SMPL.D\025SMPL.D#
Date Acquired: Mar 27 2017 11:03 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-05
Misc Info:
Vial Number: 2111
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	470.250	0.941	ppb	6.83	200.00	
11 B	6	3	14,435.000	28.870	ppb	6.47	20.00	OCAL
27 Al	72	3	##########	12450.000	ppb	4.99	1000.00	OCAL
51 V	45	2	20,625.000	41.250	ppb	2.04	200.00	
52 Cr	45	2	##########	295.400	ppb	1.24	200.00	OCAL
55 Mn	72	3	81,100.000	162.200	ppb	3.09	200.00	
56 Fe	45	1	##########	21820.000	ppb	0.33	1000.00	OCAL
59 Co	72	3	6,815.000	13.630	ppb	3.72	200.00	
60 Ni	45	2	60,500.000	121.000	ppb	1.02	500.00	
63 Cu	45	2	18,925.000	37.850	ppb	2.11	500.00	
66 Zn	72	3	##########	358.600	ppb	3.54	1000.00	
75 As	45	2	5,020.000	10.040	ppb	4.78	200.00	
78 Se	45	1	5,140.000	10.280	ppb	3.14	500.00	
98 Mo	115	3	1,885.000	3.770	ppb	6.06	200.00	
107 Ag	115	3	55.950	0.112	ppb	6.17	50.00	
111 Cd	115	3	803.000	1.606	ppb	4.42	200.00	
118 Sn	115	3	4,349.500	8.699	ppb	5.51	200.00	
121 Sb	115	3	230.150	0.460	ppb	6.14	25.00	
125 Te	115	3	67.950	0.136	ppb	41.95	200.00	
133 Cs	115	3	922.000	1.844	ppb	3.30	200.00	
137 Ba	115	3	23,860.000	47.720	ppb	4.66	500.00	
205 Tl	209	3	58.100	0.116	ppb	4.05	200.00	
208 Pb	209	3	2,835.500	5.671	ppb	5.24	500.00	
232 Th	209	3	2,940.000	5.880	ppb	4.72	200.00	
238 U	209	3	2,309.000	4.618	ppb	5.68	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5329032	2.52	4711899	113.1	59.5 - 120	
45 Sc	1	5913900	1.31	6055605	97.7	59.5 - 120	
45 Sc	2	1129877	0.55	1212988	93.1	59.5 - 120	
45 Sc	3	15156975	3.38	14703928	103.1	59.5 - 120	
72 Ge	1	1574326	0.83	1663216	94.7	59.5 - 120	
72 Ge	2	478910	1.17	504855	94.9	59.5 - 120	
72 Ge	3	3566485	2.06	3627351	98.3	59.5 - 120	
74 Ge	1	2202616	1.14	2340972	94.1	59.5 - 120	
74 Ge	2	701361	0.91	744310	94.2	59.5 - 120	
74 Ge	3	4917106	2.30	4991164	98.5	59.5 - 120	
115 In	1	7516863	1.66	7865358	95.6	59.5 - 120	
115 In	2	2119319	2.09	2305248	91.9	59.5 - 120	
115 In	3	12593664	2.92	12889323	97.7	59.5 - 120	
159 Tb	3	17531812	3.27	17827088	98.3	59.5 - 120	
209 Bi	3	20511962	3.51	21523622	95.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\026SMPL.D\026SMPL.D#
Date Acquired: Mar 27 2017 11:06 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-06
Misc Info:
Vial Number: 2112
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	660.000	1.320	ppb	2.28	200.00	
11 B	6	3	24,080.000	48.160	ppb	1.02	20.00	OCAL
27 Al	72	3	##########	18550.000	ppb	1.36	1000.00	OCAL
51 V	45	2	25,955.000	51.910	ppb	3.34	200.00	
52 Cr	45	2	##########	436.500	ppb	2.48	200.00	OCAL
55 Mn	72	3	##########	385.200	ppb	0.36	200.00	OCAL
56 Fe	45	1	##########	36400.000	ppb	2.36	1000.00	OCAL
59 Co	72	3	6,300.000	12.600	ppb	1.96	200.00	
60 Ni	45	2	##########	205.100	ppb	2.45	500.00	
63 Cu	45	2	33,115.000	66.230	ppb	1.78	500.00	
66 Zn	72	3	##########	418.300	ppb	1.03	1000.00	
75 As	45	2	7,580.000	15.160	ppb	5.54	200.00	
78 Se	45	1	12,830.000	25.660	ppb	1.78	500.00	
98 Mo	115	3	4,139.000	8.278	ppb	2.04	200.00	
107 Ag	115	3	227.850	0.456	ppb	5.04	50.00	
111 Cd	115	3	1,015.500	2.031	ppb	7.37	200.00	
118 Sn	115	3	4,782.500	9.565	ppb	1.85	200.00	
121 Sb	115	3	208.150	0.416	ppb	1.14	25.00	
125 Te	115	3	126.900	0.254	ppb	25.48	200.00	
133 Cs	115	3	1,734.000	3.468	ppb	2.34	200.00	
137 Ba	115	3	39,795.000	79.590	ppb	1.60	500.00	
205 Tl	209	3	314.800	0.630	ppb	3.17	200.00	
208 Pb	209	3	3,639.500	7.279	ppb	1.84	500.00	
232 Th	209	3	4,196.500	8.393	ppb	2.53	200.00	
238 U	209	3	3,364.500	6.729	ppb	1.50	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5158233	1.16	4711899	109.5	59.5 - 120	
45 Sc	1	5851318	1.63	6055605	96.6	59.5 - 120	
45 Sc	2	1088540	3.66	1212988	89.7	59.5 - 120	
45 Sc	3	14680520	1.36	14703928	99.8	59.5 - 120	
72 Ge	1	1576917	1.71	1663216	94.8	59.5 - 120	
72 Ge	2	464388	3.08	504855	92.0	59.5 - 120	
72 Ge	3	3517060	0.26	3627351	97.0	59.5 - 120	
74 Ge	1	2208372	1.26	2340972	94.3	59.5 - 120	
74 Ge	2	684167	2.61	744310	91.9	59.5 - 120	
74 Ge	3	4836048	0.75	4991164	96.9	59.5 - 120	
115 In	1	7452308	2.12	7865358	94.7	59.5 - 120	
115 In	2	2057745	2.69	2305248	89.3	59.5 - 120	
115 In	3	12352238	1.04	12889323	95.8	59.5 - 120	
159 Tb	3	17366424	1.66	17827088	97.4	59.5 - 120	
209 Bi	3	20264690	1.41	21523622	94.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\027SMPL.D\027SMPL.D#
Date Acquired: Mar 27 2017 11:09 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-07
Misc Info:
Vial Number: 2201
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	577.500	1.155	ppb	2.78	200.00	
11 B	6	3	17,900.000	35.800	ppb	4.09	20.00	OCAL
27 Al	72	3	##########	14530.000	ppb	1.72	1000.00	OCAL
51 V	45	2	22,380.000	44.760	ppb	0.58	200.00	
52 Cr	45	2	##########	356.900	ppb	0.54	200.00	OCAL
55 Mn	72	3	##########	251.500	ppb	1.40	200.00	OCAL
56 Fe	45	1	##########	27250.000	ppb	3.37	1000.00	OCAL
59 Co	72	3	6,010.000	12.020	ppb	1.23	200.00	
60 Ni	45	2	89,050.000	178.100	ppb	0.66	500.00	
63 Cu	45	2	29,160.000	58.320	ppb	0.44	500.00	
66 Zn	72	3	##########	313.200	ppb	1.06	1000.00	
75 As	45	2	5,540.000	11.080	ppb	5.30	200.00	
78 Se	45	1	13,880.000	27.760	ppb	3.57	500.00	
98 Mo	115	3	2,389.000	4.778	ppb	2.28	200.00	
107 Ag	115	3	304.450	0.609	ppb	2.09	50.00	
111 Cd	115	3	982.000	1.964	ppb	0.76	200.00	
118 Sn	115	3	4,739.500	9.479	ppb	1.63	200.00	
121 Sb	115	3	183.350	0.367	ppb	1.50	25.00	
125 Te	115	3	49.170	0.098	ppb	62.35	200.00	
133 Cs	115	3	1,290.500	2.581	ppb	1.74	200.00	
137 Ba	115	3	37,230.000	74.460	ppb	0.94	500.00	
205 Tl	209	3	139.500	0.279	ppb	3.01	200.00	
208 Pb	209	3	3,194.000	6.388	ppb	0.69	500.00	
232 Th	209	3	3,412.500	6.825	ppb	1.11	200.00	
238 U	209	3	3,191.500	6.383	ppb	1.17	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5166445	1.28	4711899	109.6	59.5 - 120	
45 Sc	1	5754375	1.48	6055605	95.0	59.5 - 120	
45 Sc	2	1105825	1.45	1212988	91.2	59.5 - 120	
45 Sc	3	14673610	1.24	14703928	99.8	59.5 - 120	
72 Ge	1	1568896	2.15	1663216	94.3	59.5 - 120	
72 Ge	2	470499	1.80	504855	93.2	59.5 - 120	
72 Ge	3	3513138	0.55	3627351	96.9	59.5 - 120	
74 Ge	1	2181988	0.75	2340972	93.2	59.5 - 120	
74 Ge	2	692005	1.59	744310	93.0	59.5 - 120	
74 Ge	3	4831089	0.79	4991164	96.8	59.5 - 120	
115 In	1	7364689	1.08	7865358	93.6	59.5 - 120	
115 In	2	2087425	2.08	2305248	90.6	59.5 - 120	
115 In	3	12348428	0.36	12889323	95.8	59.5 - 120	
159 Tb	3	17352236	1.00	17827088	97.3	59.5 - 120	
209 Bi	3	20222028	0.71	21523622	94.0	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\028SMPL.D\028SMPL.D#
Date Acquired: Mar 27 2017 11:12 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-08
Misc Info:
Vial Number: 2202
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	574.000	1.148	ppb	1.41	200.00	
11 B	6	3	15,980.000	31.960	ppb	6.51	20.00	OCAL
27 Al	72	3	##########	14800.000	ppb	3.13	1000.00	OCAL
51 V	45	2	24,050.000	48.100	ppb	0.42	200.00	
52 Cr	45	2	##########	353.600	ppb	1.98	200.00	OCAL
55 Mn	72	3	##########	220.300	ppb	4.39	200.00	OCAL
56 Fe	45	1	##########	29990.000	ppb	0.69	1000.00	OCAL
59 Co	72	3	6,025.000	12.050	ppb	4.52	200.00	
60 Ni	45	2	85,700.000	171.400	ppb	2.08	500.00	
63 Cu	45	2	32,710.000	65.420	ppb	2.25	500.00	
66 Zn	72	3	##########	639.100	ppb	9.52	1000.00	
75 As	45	2	6,785.000	13.570	ppb	5.45	200.00	
78 Se	45	1	10,475.000	20.950	ppb	0.60	500.00	
98 Mo	115	3	3,306.000	6.612	ppb	3.31	200.00	
107 Ag	115	3	190.750	0.382	ppb	3.55	50.00	
111 Cd	115	3	1,871.000	3.742	ppb	5.28	200.00	
118 Sn	115	3	4,688.500	9.377	ppb	4.16	200.00	
121 Sb	115	3	217.750	0.436	ppb	5.52	25.00	
125 Te	115	3	26.420	0.053	ppb	73.01	200.00	
133 Cs	115	3	1,078.000	2.156	ppb	2.81	200.00	
137 Ba	115	3	37,120.000	74.240	ppb	3.50	500.00	
205 Tl	209	3	144.450	0.289	ppb	0.83	200.00	
208 Pb	209	3	3,623.500	7.247	ppb	5.22	500.00	
232 Th	209	3	3,387.500	6.775	ppb	4.59	200.00	
238 U	209	3	2,634.500	5.269	ppb	4.37	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5283798	2.91	4711899	112.1	59.5 - 120	
45 Sc	1	5841322	0.43	6055605	96.5	59.5 - 120	
45 Sc	2	1098706	1.53	1212988	90.6	59.5 - 120	
45 Sc	3	15073795	2.41	14703928	102.5	59.5 - 120	
72 Ge	1	1553046	1.02	1663216	93.4	59.5 - 120	
72 Ge	2	462586	1.70	504855	91.6	59.5 - 120	
72 Ge	3	3560118	2.87	3627351	98.1	59.5 - 120	
74 Ge	1	2179225	0.09	2340972	93.1	59.5 - 120	
74 Ge	2	678524	2.08	744310	91.2	59.5 - 120	
74 Ge	3	4880210	2.09	4991164	97.8	59.5 - 120	
115 In	1	7482388	0.27	7865358	95.1	59.5 - 120	
115 In	2	2062894	2.39	2305248	89.5	59.5 - 120	
115 In	3	12615536	1.66	12889323	97.9	59.5 - 120	
159 Tb	3	17565044	3.15	17827088	98.5	59.5 - 120	
209 Bi	3	20543678	2.57	21523622	95.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\029SMPL.D\029SMPL.D#
Date Acquired: Mar 27 2017 11:15 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-09
Misc Info:
Vial Number: 2203
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	697.000	1.394	ppb	3.26	200.00	
11 B	6	3	25,900.000	51.800	ppb	3.80	20.00	OCAL
27 Al	72	3	##########	18560.000	ppb	1.06	1000.00	OCAL
51 V	45	2	31,655.000	63.310	ppb	1.12	200.00	
52 Cr	45	2	##########	387.300	ppb	0.67	200.00	OCAL
55 Mn	72	3	86,950.000	173.900	ppb	1.53	200.00	
56 Fe	45	1	##########	52410.000	ppb	1.11	1000.00	OCAL
59 Co	72	3	7,070.000	14.140	ppb	1.75	200.00	
60 Ni	45	2	##########	243.900	ppb	0.99	500.00	
63 Cu	45	2	40,405.000	80.810	ppb	0.35	500.00	
66 Zn	72	3	##########	689.600	ppb	0.73	1000.00	
75 As	45	2	11,130.000	22.260	ppb	3.98	200.00	
78 Se	45	1	22,565.000	45.130	ppb	2.42	500.00	
98 Mo	115	3	7,455.000	14.910	ppb	0.74	200.00	
107 Ag	115	3	467.150	0.934	ppb	1.19	50.00	
111 Cd	115	3	1,471.000	2.942	ppb	3.32	200.00	
118 Sn	115	3	4,486.500	8.973	ppb	0.94	200.00	
121 Sb	115	3	387.550	0.775	ppb	1.11	25.00	
125 Te	115	3	58.450	0.117	ppb	20.08	200.00	
133 Cs	115	3	1,752.000	3.504	ppb	1.50	200.00	
137 Ba	115	3	43,910.000	87.820	ppb	1.22	500.00	
205 Tl	209	3	306.350	0.613	ppb	2.41	200.00	
208 Pb	209	3	5,160.000	10.320	ppb	0.89	500.00	
232 Th	209	3	4,349.500	8.699	ppb	0.18	200.00	
238 U	209	3	6,970.000	13.940	ppb	0.39	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5510482	1.05	4711899	116.9	59.5 - 120	
45 Sc	1	6123784	0.73	6055605	101.1	59.5 - 120	
45 Sc	2	1155305	1.34	1212988	95.2	59.5 - 120	
45 Sc	3	15523396	0.29	14703928	105.6	59.5 - 120	
72 Ge	1	1633203	1.54	1663216	98.2	59.5 - 120	
72 Ge	2	485658	1.39	504855	96.2	59.5 - 120	
72 Ge	3	3679158	0.41	3627351	101.4	59.5 - 120	
74 Ge	1	2294959	0.19	2340972	98.0	59.5 - 120	
74 Ge	2	716094	1.29	744310	96.2	59.5 - 120	
74 Ge	3	5040279	0.67	4991164	101.0	59.5 - 120	
115 In	1	7848591	0.92	7865358	99.8	59.5 - 120	
115 In	2	2163138	2.19	2305248	93.8	59.5 - 120	
115 In	3	13017606	0.89	12889323	101.0	59.5 - 120	
159 Tb	3	18073436	1.09	17827088	101.4	59.5 - 120	
209 Bi	3	21210458	0.85	21523622	98.5	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\030SMPL.D\030SMPL.D#
Date Acquired: Mar 27 2017 11:18 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-10
Misc Info:
Vial Number: 2204
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	548.000	1.096	ppb	1.65	200.00	
11 B	6	3	14,405.000	28.810	ppb	1.92	20.00	OCAL
27 Al	72	3	##########	15010.000	ppb	2.79	1000.00	OCAL
51 V	45	2	27,355.000	54.710	ppb	1.42	200.00	
52 Cr	45	2	##########	348.800	ppb	1.49	200.00	OCAL
55 Mn	72	3	##########	403.800	ppb	2.35	200.00	OCAL
56 Fe	45	1	##########	29990.000	ppb	1.33	1000.00	OCAL
59 Co	72	3	5,700.000	11.400	ppb	1.57	200.00	
60 Ni	45	2	##########	205.400	ppb	1.72	500.00	
63 Cu	45	2	32,355.000	64.710	ppb	0.85	500.00	
66 Zn	72	3	##########	622.300	ppb	1.08	1000.00	
75 As	45	2	8,775.000	17.550	ppb	0.89	200.00	
78 Se	45	1	7,620.000	15.240	ppb	3.17	500.00	
98 Mo	115	3	4,759.000	9.518	ppb	1.75	200.00	
107 Ag	115	3	115.650	0.231	ppb	2.85	50.00	
111 Cd	115	3	1,147.000	2.294	ppb	5.20	200.00	
118 Sn	115	3	4,291.000	8.582	ppb	1.73	200.00	
121 Sb	115	3	329.550	0.659	ppb	1.67	25.00	
125 Te	115	3	19.370	0.039	ppb	41.30	200.00	
133 Cs	115	3	1,145.500	2.291	ppb	0.40	200.00	
137 Ba	115	3	20,955.000	41.910	ppb	1.24	500.00	
205 Tl	209	3	207.050	0.414	ppb	0.34	200.00	
208 Pb	209	3	3,892.000	7.784	ppb	1.52	500.00	
232 Th	209	3	3,628.000	7.256	ppb	1.40	200.00	
238 U	209	3	4,563.000	9.126	ppb	1.29	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5672156	1.78	4711899	120.4	59.5 - 120	
45 Sc	1	6178241	1.00	6055605	102.0	59.5 - 120	
45 Sc	2	1181719	1.34	1212988	97.4	59.5 - 120	
45 Sc	3	15616738	1.72	14703928	106.2	59.5 - 120	
72 Ge	1	1631566	1.35	1663216	98.1	59.5 - 120	
72 Ge	2	490699	1.89	504855	97.2	59.5 - 120	
72 Ge	3	3667923	1.00	3627351	101.1	59.5 - 120	
74 Ge	1	2311859	0.80	2340972	98.8	59.5 - 120	
74 Ge	2	723110	2.00	744310	97.2	59.5 - 120	
74 Ge	3	5051018	1.44	4991164	101.2	59.5 - 120	
115 In	1	7959386	1.37	7865358	101.2	59.5 - 120	
115 In	2	2210749	2.06	2305248	95.9	59.5 - 120	
115 In	3	13138819	0.69	12889323	101.9	59.5 - 120	
159 Tb	3	18163652	0.62	17827088	101.9	59.5 - 120	
209 Bi	3	21441860	1.33	21523622	99.6	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\031SMPL.D\031SMPL.D#
Date Acquired: Mar 27 2017 11:21 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-11
Misc Info:
Vial Number: 2205
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	95.700	0.191	ppb	5.97	200.00	
11 B	6	3	-2,353.500	-4.707	ppb	31.55	20.00	
27 Al	72	3	##########	2179.000	ppb	2.28	1000.00	OCAL
51 V	45	2	9,380.000	18.760	ppb	2.88	200.00	
52 Cr	45	2	39,110.000	78.220	ppb	2.12	200.00	
55 Mn	72	3	23,930.000	47.860	ppb	1.63	200.00	
56 Fe	45	1	##########	7128.000	ppb	0.91	1000.00	OCAL
59 Co	72	3	11,270.000	22.540	ppb	1.54	200.00	
60 Ni	45	2	29,645.000	59.290	ppb	2.11	500.00	
63 Cu	45	2	7,005.000	14.010	ppb	3.80	500.00	
66 Zn	72	3	93,800.000	187.600	ppb	1.61	1000.00	
75 As	45	2	2,160.500	4.321	ppb	2.19	200.00	
78 Se	45	1	1,686.000	3.372	ppb	3.26	500.00	
98 Mo	115	3	1,300.000	2.600	ppb	1.54	200.00	
107 Ag	115	3	55.000	0.110	ppb	11.42	50.00	
111 Cd	115	3	476.850	0.954	ppb	3.78	200.00	
118 Sn	115	3	3,874.500	7.749	ppb	1.11	200.00	
121 Sb	115	3	147.850	0.296	ppb	3.58	25.00	
125 Te	115	3	-2.252	-0.005	ppb	236.95	200.00	
133 Cs	115	3	183.100	0.366	ppb	1.33	200.00	
137 Ba	115	3	61,150.000	122.300	ppb	1.68	500.00	
205 Tl	209	3	44.615	0.089	ppb	3.39	200.00	
208 Pb	209	3	864.000	1.728	ppb	0.92	500.00	
232 Th	209	3	797.500	1.595	ppb	2.29	200.00	
238 U	209	3	2,473.500	4.947	ppb	1.66	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5740244	2.34	4711899	121.8	59.5 - 120	IS Fail
45 Sc	1	6193426	2.06	6055605	102.3	59.5 - 120	
45 Sc	2	1160590	3.55	1212988	95.7	59.5 - 120	
45 Sc	3	15746066	1.84	14703928	107.1	59.5 - 120	
72 Ge	1	1640159	1.52	1663216	98.6	59.5 - 120	
72 Ge	2	489252	3.88	504855	96.9	59.5 - 120	
72 Ge	3	3708178	1.59	3627351	102.2	59.5 - 120	
74 Ge	1	2314068	1.33	2340972	98.9	59.5 - 120	
74 Ge	2	720565	3.82	744310	96.8	59.5 - 120	
74 Ge	3	5100056	1.22	4991164	102.2	59.5 - 120	
115 In	1	7961827	2.12	7865358	101.2	59.5 - 120	
115 In	2	2184996	3.68	2305248	94.8	59.5 - 120	
115 In	3	13213897	1.60	12889323	102.5	59.5 - 120	
159 Tb	3	18031242	1.22	17827088	101.1	59.5 - 120	
209 Bi	3	21554790	1.60	21523622	100.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\032SMPL.D\032SMPL.D#
Date Acquired: Mar 27 2017 11:24 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-12
Misc Info:
Vial Number: 2206
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,438.745	2.849	ppb	1.41	200.00	
11 B	6	3	29,618.250	58.650	ppb	1.58	20.00	OCAL
27 Al	72	3	##########	35710.000	ppb	2.28	1000.00	OCAL
51 V	45	2	24,083.450	47.690	ppb	2.76	200.00	
52 Cr	45	2	18,654.700	36.940	ppb	2.04	200.00	
55 Mn	72	3	##########	5657.000	ppb	1.12	200.00	OCAL
56 Fe	45	1	##########	60710.000	ppb	3.68	1000.00	OCAL
59 Co	72	3	15,801.450	31.290	ppb	1.31	200.00	
60 Ni	45	2	40,314.150	79.830	ppb	3.64	500.00	
63 Cu	45	2	51,560.500	102.100	ppb	2.55	500.00	
66 Zn	72	3	##########	474.000	ppb	0.90	1000.00	
75 As	45	2	13,190.600	26.120	ppb	3.20	200.00	
78 Se	45	1	257.803	0.511	ppb	7.11	500.00	
98 Mo	115	3	404.556	0.801	ppb	3.28	200.00	
107 Ag	115	3	177.609	0.352	ppb	2.84	50.00	
111 Cd	115	3	823.655	1.631	ppb	6.06	200.00	
118 Sn	115	3	4,880.320	9.664	ppb	0.95	200.00	
121 Sb	115	3	347.996	0.689	ppb	1.91	25.00	
125 Te	115	3	120.291	0.238	ppb	33.85	200.00	
133 Cs	115	3	4,094.540	8.108	ppb	1.32	200.00	
137 Ba	115	3	##########	282.500	ppb	1.51	500.00	
205 Tl	209	3	257.449	0.510	ppb	1.72	200.00	
208 Pb	209	3	23,033.050	45.610	ppb	0.77	500.00	
232 Th	209	3	6,398.350	12.670	ppb	1.02	200.00	
238 U	209	3	663.065	1.313	ppb	0.86	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5237536	0.73	4711899	111.2	59.5 - 120	
45 Sc	1	6482976	4.74	6055605	107.1	59.5 - 120	
45 Sc	2	1113064	2.56	1212988	91.8	59.5 - 120	
45 Sc	3	15240145	1.17	14703928	103.6	59.5 - 120	
72 Ge	1	1710931	4.35	1663216	102.9	59.5 - 120	
72 Ge	2	460751	1.54	504855	91.3	59.5 - 120	
72 Ge	3	3535325	0.88	3627351	97.5	59.5 - 120	
74 Ge	1	2374445	4.94	2340972	101.4	59.5 - 120	
74 Ge	2	679601	1.75	744310	91.3	59.5 - 120	
74 Ge	3	4833122	1.05	4991164	96.8	59.5 - 120	
115 In	1	8140459	3.88	7865358	103.5	59.5 - 120	
115 In	2	2051144	2.01	2305248	89.0	59.5 - 120	
115 In	3	12631050	0.97	12889323	98.0	59.5 - 120	
159 Tb	3	17626562	0.23	17827088	98.9	59.5 - 120	
209 Bi	3	20315512	1.27	21523622	94.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\033SMPL.D\033SMPL.D#
Date Acquired: Mar 27 2017 11:27 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-13
Misc Info:
Vial Number: 2207
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	924.150	1.830	ppb	4.67	200.00	
11 B	6	3	11,478.650	22.730	ppb	9.87	20.00	OCAL
27 Al	72	3	##########	39420.000	ppb	5.45	1000.00	OCAL
51 V	45	2	29,951.550	59.310	ppb	2.05	200.00	
52 Cr	45	2	23,876.400	47.280	ppb	2.03	200.00	
55 Mn	72	3	##########	4832.000	ppb	5.12	200.00	OCAL
56 Fe	45	1	##########	52130.000	ppb	4.69	1000.00	OCAL
59 Co	72	3	10,175.750	20.150	ppb	3.99	200.00	
60 Ni	45	2	26,088.300	51.660	ppb	2.68	500.00	
63 Cu	45	2	25,421.700	50.340	ppb	2.41	500.00	
66 Zn	72	3	74,336.000	147.200	ppb	4.14	1000.00	
75 As	45	2	6,378.150	12.630	ppb	5.58	200.00	
78 Se	45	1	369.458	0.732	ppb	8.39	500.00	
98 Mo	115	3	376.528	0.746	ppb	7.99	200.00	
107 Ag	115	3	72.569	0.144	ppb	3.53	50.00	
111 Cd	115	3	675.690	1.338	ppb	9.25	200.00	
118 Sn	115	3	4,276.340	8.468	ppb	4.73	200.00	
121 Sb	115	3	156.702	0.310	ppb	5.58	25.00	
125 Te	115	3	73.326	0.145	ppb	62.72	200.00	
133 Cs	115	3	2,421.980	4.796	ppb	2.33	200.00	
137 Ba	115	3	##########	226.900	ppb	2.81	500.00	
205 Tl	209	3	123.220	0.244	ppb	7.18	200.00	
208 Pb	209	3	10,847.400	21.480	ppb	4.48	500.00	
232 Th	209	3	4,197.055	8.311	ppb	4.82	200.00	
238 U	209	3	524.190	1.038	ppb	5.18	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5591325	1.40	4711899	118.7	59.5 - 120	
45 Sc	1	5915171	2.18	6055605	97.7	59.5 - 120	
45 Sc	2	1143067	4.38	1212988	94.2	59.5 - 120	
45 Sc	3	16113616	1.50	14703928	109.6	59.5 - 120	
72 Ge	1	1566208	0.63	1663216	94.2	59.5 - 120	
72 Ge	2	468988	3.96	504855	92.9	59.5 - 120	
72 Ge	3	3690813	1.87	3627351	101.7	59.5 - 120	
74 Ge	1	2186237	0.99	2340972	93.4	59.5 - 120	
74 Ge	2	686589	3.91	744310	92.2	59.5 - 120	
74 Ge	3	5055588	2.01	4991164	101.3	59.5 - 120	
115 In	1	7430848	1.73	7865358	94.5	59.5 - 120	
115 In	2	2090610	4.80	2305248	90.7	59.5 - 120	
115 In	3	13193781	1.14	12889323	102.4	59.5 - 120	
159 Tb	3	18555544	2.37	17827088	104.1	59.5 - 120	
209 Bi	3	21026676	3.02	21523622	97.7	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\034SMPL.D\034SMPL.D#
Date Acquired: Mar 27 2017 11:30 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-14
Misc Info:
Vial Number: 2208
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,638.120	3.212	ppb	2.03	200.00	
11 B	6	3	15,402.000	30.200	ppb	3.01	20.00	OCAL
27 Al	72	3	##########	68370.000	ppb	2.26	1000.00	OCAL
51 V	45	2	42,707.400	83.740	ppb	5.31	200.00	
52 Cr	45	2	36,618.000	71.800	ppb	5.61	200.00	
55 Mn	72	3	##########	11430.000	ppb	1.88	200.00	OCAL
56 Fe	45	1	##########	82420.000	ppb	3.97	1000.00	OCAL
59 Co	72	3	17,885.700	35.070	ppb	0.87	200.00	
60 Ni	45	2	43,018.500	84.350	ppb	4.97	500.00	
63 Cu	45	2	37,454.400	73.440	ppb	6.36	500.00	
66 Zn	72	3	86,904.000	170.400	ppb	1.95	1000.00	
75 As	45	2	9,338.100	18.310	ppb	7.49	200.00	
78 Se	45	1	273.411	0.536	ppb	9.65	500.00	
98 Mo	115	3	330.990	0.649	ppb	1.65	200.00	
107 Ag	115	3	67.524	0.132	ppb	6.57	50.00	
111 Cd	115	3	614.550	1.205	ppb	7.37	200.00	
118 Sn	115	3	4,744.530	9.303	ppb	5.02	200.00	
121 Sb	115	3	234.039	0.459	ppb	5.03	25.00	
125 Te	115	3	35.639	0.070	ppb	163.42	200.00	
133 Cs	115	3	4,383.450	8.595	ppb	3.45	200.00	
137 Ba	115	3	##########	923.500	ppb	3.07	500.00	OCAL
205 Tl	209	3	193.035	0.379	ppb	2.23	200.00	
208 Pb	209	3	28,463.100	55.810	ppb	2.85	500.00	
232 Th	209	3	6,232.200	12.220	ppb	3.47	200.00	
238 U	209	3	548.760	1.076	ppb	1.55	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5551459	2.32	4711899	117.8	59.5 - 120	
45 Sc	1	6213596	1.03	6055605	102.6	59.5 - 120	
45 Sc	2	1138916	3.18	1212988	93.9	59.5 - 120	
45 Sc	3	15733618	2.14	14703928	107.0	59.5 - 120	
72 Ge	1	1650844	0.88	1663216	99.3	59.5 - 120	
72 Ge	2	466821	2.57	504855	92.5	59.5 - 120	
72 Ge	3	3638509	0.48	3627351	100.3	59.5 - 120	
74 Ge	1	2260370	1.65	2340972	96.6	59.5 - 120	
74 Ge	2	684631	2.76	744310	92.0	59.5 - 120	
74 Ge	3	4945802	0.96	4991164	99.1	59.5 - 120	
115 In	1	7677607	1.44	7865358	97.6	59.5 - 120	
115 In	2	2060715	3.06	2305248	89.4	59.5 - 120	
115 In	3	12821421	1.77	12889323	99.5	59.5 - 120	
159 Tb	3	17725058	1.80	17827088	99.4	59.5 - 120	
209 Bi	3	20366522	1.46	21523622	94.6	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\035_CCV.D\035_CCV.D#
Date Acquired: Mar 27 2017 11:33 am
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1305
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	100.700	1.27	100.00	100.7	89 - 110	
11 B	6	3	-4.678	3.22	10.00	-46.8	89 - 110	Fail
27 Al	72	3	587.500	2.56	500.00	117.5	89 - 110	Fail
51 V	45	2	110.900	2.17	100.00	110.9	89 - 110	Fail
52 Cr	45	2	112.100	2.82	100.00	112.1	89 - 110	Fail
55 Mn	72	3	109.800	1.83	100.00	109.8	89 - 110	
56 Fe	45	1	637.500	2.11	500.00	127.5	89 - 110	Fail
59 Co	72	3	104.600	2.66	100.00	104.6	89 - 110	
60 Ni	45	2	284.000	2.63	250.00	113.6	89 - 110	Fail
63 Cu	45	2	267.400	2.72	250.00	107.0	89 - 110	
66 Zn	72	3	483.200	1.91	500.00	96.6	89 - 110	
75 As	45	2	112.500	2.99	100.00	112.5	89 - 110	Fail
78 Se	45	1	278.500	2.48	250.00	111.4	89 - 110	Fail
98 Mo	115	3	98.950	3.19	100.00	99.0	89 - 110	
107 Ag	115	3	25.820	2.29	25.00	103.3	89 - 110	
111 Cd	115	3	103.100	2.75	100.00	103.1	89 - 110	
118 Sn	115	3	102.500	2.55	100.00	102.5	89 - 110	
121 Sb	115	3	12.770	2.22	12.50	102.2	89 - 110	
125 Te	115	3	100.300	2.87	100.00	100.3	89 - 110	
133 Cs	115	3	100.700	2.70	100.00	100.7	89 - 110	
137 Ba	115	3	228.000	2.69	250.00	91.2	89 - 110	
205 Tl	209	3	102.700	2.69	100.00	102.7	89 - 110	
208 Pb	209	3	257.800	2.38	250.00	103.1	89 - 110	
232 Th	209	3	104.300	2.25	100.00	104.3	89 - 110	
238 U	209	3	103.100	3.46	100.00	103.1	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5661171	1.53	4711899	120.1	60 - 120	
45 Sc	1	6063161	1.61	6055605	100.1	60 - 120	
45 Sc	2	1149751	5.76	1212988	94.8	60 - 120	
45 Sc	3	15724861	1.42	14703928	106.9	60 - 120	
72 Ge	1	1615578	1.74	1663216	97.1	60 - 120	
72 Ge	2	485783	3.95	504855	96.2	60 - 120	
72 Ge	3	3677858	1.44	3627351	101.4	60 - 120	
74 Ge	1	2280212	0.66	2340972	97.4	60 - 120	
74 Ge	2	714951	4.53	744310	96.1	60 - 120	
74 Ge	3	5120222	1.70	4991164	102.6	60 - 120	
115 In	1	7798498	0.83	7865358	99.1	60 - 120	
115 In	2	2174168	5.08	2305248	94.3	60 - 120	
115 In	3	13246231	1.97	12889323	102.8	60 - 120	
159 Tb	3	17962594	1.44	17827088	100.8	60 - 120	
209 Bi	3	21422954	1.98	21523622	99.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

8 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\036_CCB.D\036_CCB.D#
Date Acquired: Mar 27 2017 11:36 am
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.052 ppb	33.87	0.150	
11 B	6	3	-15.170 ppb	11.25	1.500	
27 Al	72	3	3.345 ppb	2.05	3.000	Fail
51 V	45	2	-0.230 ppb	36.38	0.600	
52 Cr	45	2	-0.018 ppb	137.09	1.500	
55 Mn	72	3	0.025 ppb	258.33	1.500	
56 Fe	45	1	9.421 ppb	33.74	12.000	
59 Co	72	3	-0.006 ppb	36.06	0.150	
60 Ni	45	2	0.053 ppb	86.64	1.800	
63 Cu	45	2	-0.020 ppb	433.02	1.500	
66 Zn	72	3	-1.319 ppb	29.89	6.000	
75 As	45	2	0.029 ppb	972.32	0.600	
78 Se	45	1	0.261 ppb	4.17	0.300	
98 Mo	115	3	0.036 ppb	41.98	1.500	
107 Ag	115	3	0.004 ppb	49.13	0.150	
111 Cd	115	3	0.030 ppb	36.68	0.300	
118 Sn	115	3	0.138 ppb	45.54	0.300	
121 Sb	115	3	0.213 ppb	6.46	1.200	
125 Te	115	3	-0.011 ppb	881.91	3.000	
133 Cs	115	3	0.030 ppb	4.31	0.600	
137 Ba	115	3	0.071 ppb	8.74	0.300	
205 Tl	209	3	0.027 ppb	20.51	0.300	
208 Pb	209	3	0.043 ppb	6.04	0.300	
232 Th	209	3	0.136 ppb	10.56	3.000	
238 U	209	3	0.016 ppb	20.82	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5511747	2.25	4711899	117.0	60 - 120	
45 Sc	1	5895127	1.09	6055605	97.3	60 - 120	
45 Sc	2	1142868	2.75	1212988	94.2	60 - 120	
45 Sc	3	15322263	2.18	14703928	104.2	60 - 120	
72 Ge	1	1592673	1.67	1663216	95.8	60 - 120	
72 Ge	2	481956	3.06	504855	95.5	60 - 120	
72 Ge	3	3630671	0.64	3627351	100.1	60 - 120	
74 Ge	1	2235062	0.93	2340972	95.5	60 - 120	
74 Ge	2	710694	2.48	744310	95.5	60 - 120	
74 Ge	3	4990684	1.09	4991164	100.0	60 - 120	
115 In	1	7606528	1.23	7865358	96.7	60 - 120	
115 In	2	2155228	2.90	2305248	93.5	60 - 120	
115 In	3	12944416	1.89	12889323	100.4	60 - 120	
159 Tb	3	17566948	1.13	17827088	98.5	60 - 120	
209 Bi	3	20790646	0.43	21523622	96.6	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

1 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\037SMPL.D\037SMPL.D#
Date Acquired: Mar 27 2017 11:39 am
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-15
Misc Info:
Vial Number: 2209
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal. Update: Mar 27 2017 11:54 am
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	839.815	1.663	ppb	10.10	200.00	
11 B	6	3	8,428.450	16.690	ppb	35.25	20.00	
27 Al	72	3	##########	35330.000	ppb	10.07	1000.00	OCAL
51 V	45	2	24,280.400	48.080	ppb	4.04	200.00	
52 Cr	45	2	19,881.850	39.370	ppb	4.19	200.00	
55 Mn	72	3	##########	4182.000	ppb	9.42	200.00	OCAL
56 Fe	45	1	##########	44150.000	ppb	4.17	1000.00	OCAL
59 Co	72	3	9,004.150	17.830	ppb	8.60	200.00	
60 Ni	45	2	21,614.000	42.800	ppb	2.47	500.00	
63 Cu	45	2	21,523.100	42.620	ppb	2.40	500.00	
66 Zn	72	3	64,438.000	127.600	ppb	9.65	1000.00	
75 As	45	2	5,050.000	10.000	ppb	5.69	200.00	
78 Se	45	1	323.251	0.640	ppb	12.59	500.00	
98 Mo	115	3	338.805	0.671	ppb	7.65	200.00	
107 Ag	115	3	62.368	0.124	ppb	8.56	50.00	
111 Cd	115	3	607.515	1.203	ppb	13.46	200.00	
118 Sn	115	3	3,760.230	7.446	ppb	9.12	200.00	
121 Sb	115	3	193.516	0.383	ppb	10.02	25.00	
125 Te	115	3	56.863	0.113	ppb	35.14	200.00	
133 Cs	115	3	2,171.500	4.300	ppb	7.78	200.00	
137 Ba	115	3	95,849.000	189.800	ppb	8.41	500.00	
205 Tl	209	3	117.110	0.232	ppb	8.88	200.00	
208 Pb	209	3	10,155.550	20.110	ppb	8.86	500.00	
232 Th	209	3	3,773.360	7.472	ppb	8.39	200.00	
238 U	209	3	468.691	0.928	ppb	8.57	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5885984	5.52	4711899	124.9	59.5 - 120	IS Fail
45 Sc	1	6219052	1.95	6055605	102.7	59.5 - 120	
45 Sc	2	1192943	1.98	1212988	98.3	59.5 - 120	
45 Sc	3	16698273	5.76	14703928	113.6	59.5 - 120	
72 Ge	1	1616525	1.96	1663216	97.2	59.5 - 120	
72 Ge	2	496337	3.26	504855	98.3	59.5 - 120	
72 Ge	3	3822598	6.21	3627351	105.4	59.5 - 120	
74 Ge	1	2279657	2.57	2340972	97.4	59.5 - 120	
74 Ge	2	728947	2.31	744310	97.9	59.5 - 120	
74 Ge	3	5268367	5.86	4991164	105.6	59.5 - 120	
115 In	1	7810850	1.98	7865358	99.3	59.5 - 120	
115 In	2	2205486	2.49	2305248	95.7	59.5 - 120	
115 In	3	13751126	5.44	12889323	106.7	59.5 - 120	
159 Tb	3	19040894	5.98	17827088	106.8	59.5 - 120	
209 Bi	3	21786792	5.77	21523622	101.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

3 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\038_CCV.D\038_CCV.D#
Date Acquired: Mar 27 2017 11:42 am
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1305
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	100.200	0.75	100.00	100.2	89 - 110	
11 B	6	3	-4.958	7.94	10.00	-49.6	89 - 110	Fail
27 Al	72	3	565.400	0.46	500.00	113.1	89 - 110	Fail
51 V	45	2	105.700	3.55	100.00	105.7	89 - 110	
52 Cr	45	2	107.700	3.91	100.00	107.7	89 - 110	
55 Mn	72	3	105.200	0.62	100.00	105.2	89 - 110	
56 Fe	45	1	609.000	3.73	500.00	121.8	89 - 110	Fail
59 Co	72	3	101.000	0.97	100.00	101.0	89 - 110	
60 Ni	45	2	271.400	4.25	250.00	108.6	89 - 110	
63 Cu	45	2	257.400	4.27	250.00	103.0	89 - 110	
66 Zn	72	3	467.900	1.12	500.00	93.6	89 - 110	
75 As	45	2	108.000	5.10	100.00	108.0	89 - 110	
78 Se	45	1	276.900	2.73	250.00	110.8	89 - 110	Fail
98 Mo	115	3	97.590	0.79	100.00	97.6	89 - 110	
107 Ag	115	3	25.340	0.38	25.00	101.4	89 - 110	
111 Cd	115	3	102.100	1.07	100.00	102.1	89 - 110	
118 Sn	115	3	101.000	0.36	100.00	101.0	89 - 110	
121 Sb	115	3	12.670	0.48	12.50	101.4	89 - 110	
125 Te	115	3	99.550	1.36	100.00	99.6	89 - 110	
133 Cs	115	3	99.060	0.30	100.00	99.1	89 - 110	
137 Ba	115	3	224.900	0.38	250.00	90.0	89 - 110	
205 Tl	209	3	99.910	1.30	100.00	99.9	89 - 110	
208 Pb	209	3	251.600	1.23	250.00	100.6	89 - 110	
232 Th	209	3	101.300	1.49	100.00	101.3	89 - 110	
238 U	209	3	100.900	1.49	100.00	100.9	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5560331	1.56	4711899	118.0	60 - 120	
45 Sc	1	6007197	2.26	6055605	99.2	60 - 120	
45 Sc	2	1136554	1.65	1212988	93.7	60 - 120	
45 Sc	3	15754675	1.46	14703928	107.1	60 - 120	
72 Ge	1	1630308	2.51	1663216	98.0	60 - 120	
72 Ge	2	480261	1.68	504855	95.1	60 - 120	
72 Ge	3	3729774	0.30	3627351	102.8	60 - 120	
74 Ge	1	2278571	1.84	2340972	97.3	60 - 120	
74 Ge	2	709005	1.73	744310	95.3	60 - 120	
74 Ge	3	5142888	1.25	4991164	103.0	60 - 120	
115 In	1	7766476	2.44	7865358	98.7	60 - 120	
115 In	2	2136816	1.26	2305248	92.7	60 - 120	
115 In	3	13229404	0.12	12889323	102.6	60 - 120	
159 Tb	3	18118994	0.70	17827088	101.6	60 - 120	
209 Bi	3	21593258	0.64	21523622	100.3	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

4 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420063.b\039_CCB.D\039_CCB.D#
Date Acquired: Mar 27 2017 11:45 am
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\DATA\wg420063.b\ACZ.M
Calibration File: C:\ICPCHEM\1\DATA\WG420063.B\ACZ.C
Last Cal Update: Mar 27 2017 11:54 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.083 ppb	24.59	0.150	
11 B	6	3	-14.180 ppb	1.16	1.500	
27 Al	72	3	3.078 ppb	7.15	3.000	Fail
51 V	45	2	-0.638 ppb	18.73	0.600	
52 Cr	45	2	0.004 ppb	872.98	1.500	
55 Mn	72	3	-0.221 ppb	4.55	1.500	
56 Fe	45	1	5.846 ppb	4.48	12.000	
59 Co	72	3	0.006 ppb	63.68	0.150	
60 Ni	45	2	0.117 ppb	6.01	1.800	
63 Cu	45	2	-0.156 ppb	70.58	1.500	
66 Zn	72	3	-1.721 ppb	6.66	6.000	
75 As	45	2	-0.046 ppb	152.22	0.600	
78 Se	45	1	0.320 ppb	14.46	0.300	Fail
98 Mo	115	3	0.059 ppb	15.38	1.500	
107 Ag	115	3	0.008 ppb	76.35	0.150	
111 Cd	115	3	0.039 ppb	28.26	0.300	
118 Sn	115	3	0.105 ppb	20.03	0.300	
121 Sb	115	3	0.231 ppb	4.06	1.200	
125 Te	115	3	-0.010 ppb	421.35	3.000	
133 Cs	115	3	0.035 ppb	12.55	0.600	
137 Ba	115	3	0.065 ppb	18.34	0.300	
205 Tl	209	3	0.027 ppb	20.21	0.300	
208 Pb	209	3	0.065 ppb	21.91	0.300	
232 Th	209	3	0.153 ppb	10.20	3.000	
238 U	209	3	0.022 ppb	21.49	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	5506663	1.71	4711899	116.9	60 - 120	
45 Sc	1	5951952	1.28	6055605	98.3	60 - 120	
45 Sc	2	1169226	3.12	1212988	96.4	60 - 120	
45 Sc	3	15217133	1.46	14703928	103.5	60 - 120	
72 Ge	1	1609133	1.42	1663216	96.7	60 - 120	
72 Ge	2	496901	2.21	504855	98.4	60 - 120	
72 Ge	3	3621207	1.50	3627351	99.8	60 - 120	
74 Ge	1	2262794	1.09	2340972	96.7	60 - 120	
74 Ge	2	730386	2.09	744310	98.1	60 - 120	
74 Ge	3	4945948	0.69	4991164	99.1	60 - 120	
115 In	1	7742048	1.06	7865358	98.4	60 - 120	
115 In	2	2210978	2.40	2305248	95.9	60 - 120	
115 In	3	12890807	0.73	12889323	100.0	60 - 120	
159 Tb	3	17512440	1.23	17827088	98.2	60 - 120	
209 Bi	3	20901458	1.07	21523622	97.1	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420063.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG420112

ACZ Laboratories, Inc

Instrument ID: ICPMS5
Analyst: enb
ACZ Dept: 33
Create Date: 03/27/2017 14:24
Start Date/Time: 03/27/2017 15:58
End Date/Time: 03/27/2017 17:36

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	ASMS3050	SEMS3050	Dilution
1	WG420112WASH	NONE						☑	☑	
2	WG420112ICV	MS170301-3						☑	☑	1
3	WG420112ICB	NONE						☑	☑	1
4	WG420112ICSA	MS170303-1						☑	☑	1
5	WG420112ICSAB	MS170303-2						☑	☑	1
6	WG419750PBS	NONE						☑	☑	500
7	WG419750LCSS	PCN52822						☑	☑	5000
8	WG419750LCSSD	PCN52822						☑	☑	5000
9	L36109-01	RC-40V1(22-37)		30				☐	☑	505
10	L36109-01MS	MS170209-3						☑	☑	505
11	L36109-01MSD	MS170209-3						☑	☑	505
12	L36109-02	RC-03V1(20-30)		30				☐	☑	500
13	L36109-03	RC-07V1(40-55)		30				☐	☑	500
14	WG420112CCV1	MS170322-4						☑	☑	1
15	WG420112CCB1	NONE						☑	☑	1
16	L36109-04	RC-11V1(30-40)		30				☐	☑	500
17	L36109-05	RC-19V1(42-52)		30				☑	☑	500
18	L36109-06	RC-21V1(27-37)		30				☑	☑	500
19	L36109-07	RC-21V1(107-117)		30				☑	☑	500
20	L36109-08	RC-24V1(27-42)		30				☑	☑	500
21	L36109-09	RC-24V1(102-112)		30				☑	☑	500
22	L36109-10	RC-28V1(37-48)		30				☑	☑	500

Report Comments: _____

Internal Comments _____

AREV: ENB 3/28/17
Initials, Date

SREV: 3-28-17
Initials, Date

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG420112

ACZ Laboratories, Inc

Instrument ID: ICPMS5
Analyst:
ACZ Dept: 33
Create Date: 03/27/2017 14:24
Start Date/Time:
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 3050	SE MS 3050	Dilution
23	L36109-10SDL	NONE			1			☑	☑	500
24	L36109-11	RC-38V1(52-62)		30	100			☑	☑	500
25	WG420112CCV2	MS170322-4			1			☑	☑	1
26	WG420112CCB2	NONE			1			☑	☑	1
27	L36109-12	RC-01V1(5-15)		30	101			☑	☑	505
28	L36109-13	RC-10V1(5-22)		30	101			☑	☑	505
29	L36109-14	SS-16 (GRAB)		30	102			☑	☑	510
30	L36109-15	RC-10V1(5-22)DUP		30	101			☑	☑	505
31	WG420112CCV3	MS170322-4			1			☑	☑	1
32	WG420112CCB3	NONE			1			☑	☑	1

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ICPMS Total 3050

QC List Type: QC-ICPMS-846
QCListMatClass: SOLID
Bench Sheet List: R-RA-226
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-3050
Method Ref: M6020
SOP Ref: SOPII022

WG420112

ACZ Laboratories, Inc

Instrument ID: ICPMS5
Analyst:
ACZ Dept: 33
Create Date: 03/27/2017 14:24
Start Date/Time:
End Date/Time:

Sample	Login Comments
L36109-01	ZIPLOCK -- RELOG OF L35641-01 || Delivered to Soils.
L36109-01MS	ICPMS Spike
L36109-01MSD	ICPMS Spike
L36109-02	ZIPLOCK -- RELOG OF L35641-02 || Delivered to Soils.
L36109-03	ZIPLOCK -- RELOG OF L35641-03 || Delivered to Soils.
L36109-04	ZIPLOCK -- RELOG OF L35641-04 || Delivered to Soils.
L36109-05	ZIPLOCK -- RELOG OF L35641-05 || Delivered to Soils.
L36109-06	ZIPLOCK -- RELOG OF L35641-06 || Delivered to Soils.
L36109-07	ZIPLOCK -- RELOG OF L35641-07 || Delivered to Soils.
L36109-08	ZIPLOCK -- RELOG OF L35641-08 || Delivered to Soils.
L36109-09	ZIPLOCK -- RELOG OF L35641-09 || Delivered to Soils.
L36109-10	ZIPLOCK -- RELOG OF L35641-10 || Delivered to Soils.
L36109-11	ZIPLOCK -- RELOG OF L35641-11 || Delivered to Soils.
L36109-12	ZIPLOCK -- RELOG OF L35641-12 || Delivered to Soils.
L36109-13	ZIPLOCK -- RELOG OF L35641-13 || Delivered to Soils.
L36109-14	ZIPLOCK -- RELOG OF L35641-14 || Delivered to Soils.
L36109-15	ZIPLOCK -- RELOG OF L35641-15 || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
ICPMS DATA REVIEW CHECKLIST

AREV:	ENB
Date:	3/28/17
SREV:	[illegible]
Date:	3-[illegible]-17

Workgroup:	420112
Sample Type:	3050
Analysis Date:	3/27/17
Analyst:	ENB

	Yes	No	N /A
1) Is the instrument ID on the bench sheet correct?	✓		
2) Has a passing method tune been performed within 24 hours?	✓		
3) Was the low calibration point dropped? If yes, notify PM of change to PQLs.			✓
4) Is the linear regression ≥ 0.995 for the analytes of interest?	✓		
5) Was the PQV standard analyzed & evaluated for DW samples ? (Fail in LIMS if no DW sxs in WG.)			✓
6) Do the dilution factors on the benchsheet match the sequence in the raw data?	✓		
7) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			✓
8) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
9) Are the % Recoveries of the internal standards within the method limits?	✓		
10) Are all of the QC critera listed in LIMS within specified limits?	✓		
11) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
12) Are all errors properly crossed out (i.e. single-line, dated & initialed)?	✓		
13) Is a current standard/reagent form attached to the workgroup?	✓		
14) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action

Calibration Standards

6020/200.8 Stock #1: MS170322-1 SCN
6020/200.8 Stock #2: MS170322-2 SCN
6020/200.8 Stock #3: MS170322-3 SCN

PQV STD: MS170302-4 SCN
Exp. 6/2/2017

INT STD: MS160923-1 SCN
Exp. 8/25/2017

Nitric Acid: 52607 PCN

Hydrochloric Acid: 52890 PCN

VERIFIED: ENB

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG420112

Date Reported: 28-Mar-17
Run ID: R1517284
Date Analyzed: 27-Mar-17
ICAL Workgroup:
Instrument ID: ICPMS5

WG420112ICV

Tag: Measured: 3/27/2017 3:58:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.04876	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	98	1		%	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.05257	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	105	1		%	++	0.0001	0.0003			

WG420112ICB

Tag: Measured: 3/27/2017 4:01:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.00014	1	B	mg/L	++	0.0001	0.0003			

WG420112ICSA

Tag: Measured: 3/27/2017 4:04:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.00022	1	B	mg/L	++	0.0001	0.0003			

WG420112ICSAB

Tag: Measured: 3/27/2017 4:07:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.02068	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	103	1		%	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.02044	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	102	1		%	++	0.0001	0.0003			

WG419750PBS

Tag: 1 Measured: 3/27/2017 4:14:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.16	500	B	mg/Kg	++	0.1	0.5			
SREV	SELENIUM	FOUND	0.124	500		mg/Kg	++	0.05	0.1			

WG419750LCSS

Tag: 1 Measured: 3/27/2017 4:17:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	140.9	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	97	5000		%	++	1	5			
SREV	SELENIUM	FOUND	177.3	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	100	5000		%	++	0.5	1			

WG419750LCSSD

Tag: 1 Measured: 3/27/2017 4:20:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	138.1	5000		mg/Kg	++	1	5			
SREV	ARSENIC	REC	95	5000		%	++	1	5			
SREV	ARSENIC	RPD	2	5000		%	++	1	5			
SREV	SELENIUM	FOUND	178.2	5000		mg/Kg	++	0.5	1			
SREV	SELENIUM	REC	100	5000		%	++	0.5	1			
SREV	SELENIUM	RPD	1	5000		%	++	0.5	1			

L36109-01

Tag: 1 Measured: 3/27/2017 4:24:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	ARSENIC	REG	10.5	505		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	16.9	505		mg/Kg	++	0.05	0.1			

L36109-01MS

Tag: 1 Measured: 3/27/2017 4:27:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	36.03	505		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	101	505		%	++	0.1	0.5			
SREV	SELENIUM	FOUND	30.335	505		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	106	505		%	++	0.05	0.1			

L36109-01MSD

Tag: 1 Measured: 3/27/2017 4:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	35.51	505		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REC	99	505		%	++	0.1	0.5			
SREV	ARSENIC	RPD	1	505		%	++	0.1	0.5			
SREV	SELENIUM	FOUND	30.659	505		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REC	109	505		%	++	0.05	0.1			
SREV	SELENIUM	RPD	1	505		%	++	0.05	0.1			

L36109-02

Tag: 1 Measured: 3/27/2017 4:33:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SELENIUM	-MS-3050	22.6	500		mg/Kg	++	0.05	0.1			

L36109-03

Tag: 1 Measured: 3/27/2017 4:36:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SELENIUM	-MS-3050	2.48	500		mg/Kg	++	0.05	0.1			

WG420112CCV1

Tag: Measured: 3/27/2017 4:39:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.1006	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	100	1		%	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.2508	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	100	1		%	++	0.0001	0.0003			

WG420112CCB1

Tag: Measured: 3/27/2017 4:42:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.0002	1	B	mg/L	++	0.0001	0.0003			

L36109-04 Tag: 1 Measured: 3/27/2017 4:45:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	SELENIUM	-MS-3050	9.42	500		mg/Kg	++	0.05	0.1			

L36109-05 Tag: 1 Measured: 3/27/2017 4:49:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	4.6	500		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	4.90	500		mg/Kg	++	0.05	0.1			

L36109-06 Tag: 1 Measured: 3/27/2017 4:52:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.3	500		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	12.0	500		mg/Kg	++	0.05	0.1			

L36109-07 Tag: 1 Measured: 3/27/2017 4:55:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	4.5	500		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	12.5	500		mg/Kg	++	0.05	0.1			

L36109-08 Tag: 1 Measured: 3/27/2017 4:58:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	5.7	500		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	9.18	500		mg/Kg	++	0.05	0.1			

L36109-09 Tag: 1 Measured: 3/27/2017 5:01:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	10.8	500		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	22.8	500		mg/Kg	++	0.05	0.1			

L36109-10 Tag: 1 Measured: 3/27/2017 5:04:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	8.4	500		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	7.79	500		mg/Kg	++	0.05	0.1			

L36109-10SDL Tag: Measured: 3/27/2017 5:07:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	D	4	500		%	++	0.1	0.5			
SREV	ARSENIC	FOUND	1.61	500		mg/Kg	++	0.1	0.5			
SREV	ARSENIC	REG	8.05	500		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	D	1	500		%	++	0.05	0.1			
SREV	SELENIUM	FOUND	1.54	500		mg/Kg	++	0.05	0.1			
SREV	SELENIUM	REG	7.7	500		mg/Kg	++	0.05	0.1			

L36109-11 Tag: 1 Measured: 3/27/2017 5:11:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	2.0	500		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	1.90	500		mg/Kg	++	0.05	0.1			

L36109-12 Tag: 1 Measured: 3/27/2017 5:14:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	12.1	505		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	.24	505		mg/Kg	++	0.05	0.1			

WG420112CCV2 Tag: Measured: 3/27/2017 5:17:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.1033	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	103	1		%	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.2586	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	103	1		%	++	0.0001	0.0003			

WG420112CCB2 Tag: Measured: 3/27/2017 5:20:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.00019	1	B	mg/L	++	0.0001	0.0003			

L36109-13 Tag: 1 Measured: 3/27/2017 5:23:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	6.1	505		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	.32	505		mg/Kg	++	0.05	0.1			

L36109-14 Tag: 1 Measured: 3/27/2017 5:26:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	8.5	510		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	.24	510		mg/Kg	++	0.05	0.1			

L36109-15 Tag: 1 Measured: 3/27/2017 5:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-3050	5.6	505		mg/Kg	++	0.1	0.5			
SREV	SELENIUM	-MS-3050	.25	505		mg/Kg	++	0.05	0.1			

WG420112CCV3 Tag: Measured: 3/27/2017 5:33:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.1001	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	100	1		%	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.2578	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	103	1		%	++	0.0001	0.0003			

WG420112CCB3 Tag: Measured: 3/27/2017 5:36:00 PM

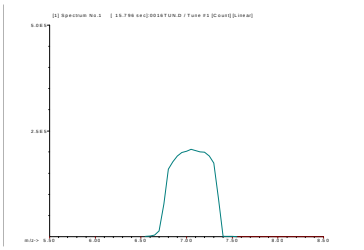
Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	SELENIUM	FOUND	0.00018	1	B	mg/L	++	0.0001	0.0003			

6020 QC Tune Report

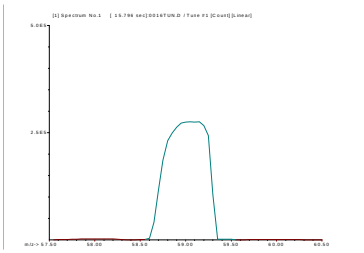
Data File: C:\ICPCHEM\1\DATA\170327at.b\0016TUN.D
Date Acquired: Mar 27 2017 11:27 am
Acq. Method: TN6020.M
Operator: SCP
Sample Name: 6020 Tune
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

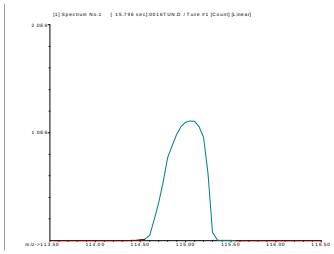
Element	Actual	Required	Flag
7 Li	1.48	5.00	
59 Co	0.87	5.00	
115 In	2.31	5.00	
205 Tl	1.90	5.00	



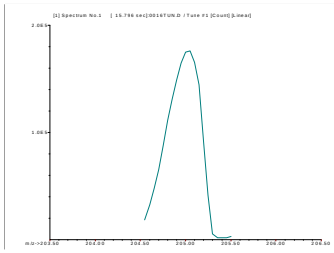
7 Li
Mass Calib.
Actual: 7.10
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



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



115 In
Mass Calib.
Actual: 115.05
Required: 114.90 - 115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



205 Tl
Mass Calib.
Actual: 205.00
Required: 204.90 - 205.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:

Calibration Coefficients

Sample Name: **ICV**
Date Acquired: **Mar 27 2017 03:58 pm**
Acq. Method: **ACZ.M**
Current Method Pa**\ICPCHEM\1\DATA\wg420112.b**
Calibration Path**\ICPCHEM\1\DATA\wg420112.b**

Element Name	Mass	Calibration Corr Coef	Tune Step	IS Ref
Be	9	0.9998	3	6
B	11	0.9998	3	6
Al	27	1.0000	3	72
V	51	1.0000	2	45
Cr	52	1.0000	2	45
Mn	55	1.0000	3	72
Fe	56	1.0000	1	45
Co	59	1.0000	3	72
Ni	60	1.0000	2	45
Cu	63	0.9999	2	45
Zn	66	0.9999	3	72
As	75	1.0000	2	45
Se	78	1.0000	1	45
Mo	98	1.0000	3	115
Ag	107	1.0000	3	115
Cd	111	1.0000	3	115
Sn	118	0.9999	3	115
Sb	121	0.9996	3	115
Te	125	1.0000	3	115
Cs	133	0.9999	3	115
Ba	137	0.9997	3	115
Tl	205	0.9998	3	209
Pb	208	1.0000	3	209
Th	232	0.9998	3	209
U	238	0.9999	3	209

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\001CAL
Date Acquired: Mar 27 2017 03:36 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:38 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1437685.00	A	18360.00	1.28
9	Be	182.23	P	5.09	2.79
11	B	16324.76	P	352.50	2.16
27	Al	33892.30	P	552.70	1.63
45	Sc	2210618.00	A	58990.00	2.67
45	Sc	390123.09	P	4309.00	1.10
45	Sc	5811112.00	A	76940.00	1.32
51	V	5717.99	P	119.40	2.09
52	Cr	441.13	P	8.39	1.90
55	Mn	17405.17	P	387.80	2.23
56	Fe	18272.29	P	139.80	0.77
59	Co	503.36	P	47.02	9.34
60	Ni	598.92	P	25.02	4.18
63	Cu	4049.60	P	18.37	0.45
66	Zn	7860.14	P	52.32	0.67
72	Ge	620800.31	P	8796.00	1.42
72	Ge	181826.59	P	332.40	0.18
72	Ge	1178895.00	A	30430.00	2.58
74	Ge	859563.19	M	11600.00	1.35
74	Ge	267187.81	P	1952.00	0.73
74	Ge	1588970.00	A	18940.00	1.19
75	As	261.12	P	53.99	20.68
78	Se	73.44	P	10.12	13.78
98	Mo	228.29	P	27.52	12.06
99			P		
106	Cd		P		
107	Ag	186.67	P	32.15	17.22
108	Cd		P		
111	Cd	81.04	P	23.80	29.37
115	In	2507252.00	A	82640.00	3.30
115	In	643330.50	P	7865.00	1.22
115	In	3110947.00	A	74050.00	2.38
118	Sn	5077.76	P	140.10	2.76
121	Sb	1139.51	P	123.50	10.84
125	Te	52.22	P	18.95	36.29
133	Cs	527.81	P	59.29	11.23
137	Ba	274.46	P	45.26	16.49
159	Tb	2953352.00	A	69120.00	2.34
205	Tl	291.13	P	30.79	10.58
206	(Pb)		P		
207	(Pb)		P		
208	Pb	646.70	P	52.39	8.10
209	Bi	2700671.00	A	51060.00	1.89
232	Th	848.95	P	35.34	4.16
238	U	190.01	P	65.07	34.25

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\002CAL
Date Acquired: Mar 27 2017 03:39 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:38 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1463960.00	A	59600.00	4.07
9	Be	114.45	P	6.94	6.06
11	B	16519.44	P	547.30	3.31
27	Al	34677.49	P	1478.00	4.26
45	Sc	2208742.00	A	45650.00	2.07
45	Sc	407208.00	P	20240.00	4.97
45	Sc	5863973.00	A	163700.00	2.79
51	V	5959.18	P	372.60	6.25
52	Cr	458.91	P	21.69	4.73
55	Mn	17571.02	P	84.03	0.48
56	Fe	17590.24	P	76.49	0.43
59	Co	446.69	P	32.15	7.20
60	Ni	561.14	P	42.21	7.52
63	Cu	4052.92	P	111.70	2.76
66	Zn	7219.79	P	197.00	2.73
72	Ge	619378.88	P	10550.00	1.70
72	Ge	191181.59	P	7542.00	3.94
72	Ge	1194336.00	A	15370.00	1.29
74	Ge	845478.19	A	17190.00	2.03
74	Ge	276143.00	P	8966.00	3.25
74	Ge	1602290.00	A	40080.00	2.50
75	As	231.12	P	5.09	2.20
78	Se	59.00	P	3.46	5.87
98	Mo	162.87	P	21.74	13.35
99			P		
106	Cd		P		
107	Ag	156.67	P	18.56	11.85
108	Cd		P		
111	Cd	42.89	P	14.38	33.53
115	In	2566905.00	A	50100.00	1.95
115	In	677596.63	P	25770.00	3.80
115	In	3141011.00	A	74120.00	2.36
118	Sn	4921.04	P	119.00	2.42
121	Sb	656.69	P	49.33	7.51
125	Te	54.45	P	9.62	17.67
133	Cs	401.13	P	10.71	2.67
137	Ba	201.12	P	42.21	20.99
159	Tb	3019531.00	A	69340.00	2.30
205	Tl	252.23	P	12.62	5.00
206	(Pb)		P		
207	(Pb)		P		
208	Pb	611.14	P	41.41	6.78
209	Bi	2738850.00	A	66110.00	2.41
232	Th	548.92	P	37.91	6.91
238	U	115.56	P	3.85	3.33

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\003CAL
Date Acquired: Mar 27 2017 03:42 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1203
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:41 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	1445753.00	A	14340.00	0.99
9	Be	111.12	P	37.91	34.12
11	B	15788.72	P	248.10	1.57
27	Al	46637.54	P	442.10	0.95
45	Sc	2299572.00	A	15330.00	0.67
45	Sc	412580.81	P	5477.00	1.33
45	Sc	5808191.00	A	66580.00	1.15
51	V	5252.23	P	193.60	3.69
52	Cr	533.36	P	28.48	5.34
55	Mn	18084.91	P	126.70	0.70
56	Fe	31291.12	P	137.80	0.44
59	Co	517.80	P	22.20	4.29
60	Ni	695.60	P	29.88	4.30
63	Cu	6193.74	P	139.90	2.26
66	Zn	13350.92	P	58.03	0.43
72	Ge	646707.31	P	6876.00	1.06
72	Ge	193143.80	P	1400.00	0.72
72	Ge	1193091.00	A	21600.00	1.81
74	Ge	889973.81	A	9662.00	1.09
74	Ge	279622.41	P	1523.00	0.54
74	Ge	1610801.00	A	23490.00	1.46
75	As	257.79	P	36.87	14.30
78	Se	55.78	P	2.78	4.98
98	Mo	174.77	P	5.23	2.99
99			P		
106	Cd		P		
107	Ag	211.12	P	18.96	8.98
108	Cd		P		
111	Cd	46.04	P	18.21	39.55
115	In	2650814.00	A	30500.00	1.15
115	In	676978.19	P	8352.00	1.23
115	In	3115737.00	A	92930.00	2.98
118	Sn	18221.20	P	530.30	2.91
121	Sb	440.02	P	49.25	11.19
125	Te	44.45	P	15.40	34.65
133	Cs	467.80	P	21.43	4.58
137	Ba	850.06	P	28.87	3.40
159	Tb	2963204.00	A	67900.00	2.29
205	Tl	278.90	P	8.39	3.01
206	(Pb)		P		
207	(Pb)		P		
208	Pb	513.36	P	20.28	3.95
209	Bi	2708319.00	A	57260.00	2.11
232	Th	470.03	P	50.45	10.73
238	U	138.90	P	13.47	9.70

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\004CALS.D\004CALS.D#
Date Acquired: Mar 27 2017 03:45 pm
Operator:
Sample Name: PQV Std
Misc Info:
Vial Number: 1103
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:44 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	1404895.00	A	9841.00	0.70
9 Be	1251.21	P	31.68	2.53
11 B	18271.44	P	565.80	3.10
27 Al	126846.00	P	361.60	0.29
45 Sc	2178721.00	A	74150.00	3.40
45 Sc	389284.69	P	8126.00	2.09
45 Sc	5543187.00	A	45950.00	0.83
51 V	10187.18	P	290.10	2.85
52 Cr	10616.37	P	84.79	0.80
55 Mn	92742.93	P	655.90	0.71
56 Fe	119310.70	P	1670.00	1.40
59 Co	6342.71	P	66.73	1.05
60 Ni	6372.74	P	106.80	1.68
63 Cu	16335.13	P	162.90	1.00
66 Zn	22308.67	P	221.80	0.99
72 Ge	609167.00	P	15230.00	2.50
72 Ge	182492.50	P	4517.00	2.48
72 Ge	1141147.00	A	3384.00	0.30
74 Ge	845148.63	A	28170.00	3.33
74 Ge	263797.59	P	6464.00	2.45
74 Ge	1537882.00	A	7276.00	0.47
75 As	977.85	P	55.22	5.65
78 Se	136.33	P	5.51	4.04
98 Mo	21428.54	P	477.80	2.23
99		P		
106 Cd		P		
107 Ag	3234.93	P	74.57	2.31
108 Cd		P		
111 Cd	1298.77	P	148.90	11.47
115 In	2465814.00	A	86500.00	3.51
115 In	631653.69	P	13630.00	2.16
115 In	2928693.00	A	20240.00	0.69
118 Sn	7425.55	P	125.80	1.69
121 Sb	21479.33	P	35.17	0.16
125 Te	2192.48	P	85.54	3.90
133 Cs	30291.33	P	469.70	1.55
137 Ba	9792.62	P	235.30	2.40
159 Tb	2808868.00	A	31350.00	1.12
205 Tl	7361.17	P	47.68	0.65
206 (Pb)		P		
207 (Pb)		P		
208 Pb	8327.99	P	131.20	1.58
209 Bi	2553476.00	A	20240.00	0.79
232 Th	77684.37	P	191.30	0.25
238 U	7251.17	P	272.90	3.76

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1404894.90	0.70	1445753.30	97.2	59.5 - 120.4	
45 Sc	2178721.30	3.40	2299572.00	94.7	59.5 - 120.4	
45 Sc	389284.72	2.09	412580.78	94.4	59.5 - 120.4	
45 Sc	5543186.50	0.83	5808191.00	95.4	59.5 - 120.4	
72 Ge	609167.00	2.50	646707.31	94.2	59.5 - 120.4	
72 Ge	182492.52	2.48	193143.80	94.5	59.5 - 120.4	
72 Ge	1141147.50	0.30	1193090.60	95.6	59.5 - 120.4	
74 Ge	845148.63	3.33	889973.81	95.0	59.5 - 120.4	
74 Ge	263797.59	2.45	279622.44	94.3	59.5 - 120.4	
74 Ge	1537882.40	0.47	1610800.90	95.5	59.5 - 120.4	
115 In	2465814.30	3.51	2650813.80	93.0	59.5 - 120.4	
115 In	631653.75	2.16	676978.25	93.3	59.5 - 120.4	
115 In	2928693.30	0.69	3115737.50	94.0	59.5 - 120.4	
159 Tb	2808868.50	1.12	2963204.00	94.8	59.5 - 120.4	
209 Bi	2553476.00	0.79	2708319.30	94.3	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\005CALS.D\005CALS.D#
Date Acquired: Mar 27 2017 03:49 pm
Operator:
Sample Name: Level 3 Std
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:47 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	1410122.00	A	28860.00	2.05
9 Be	95459.03	P	806.80	0.85
11 B	20801.37	P	345.40	1.66
27 Al	1995003.00	A	33640.00	1.69
45 Sc	2210721.00	A	49830.00	2.25
45 Sc	405233.31	P	11670.00	2.88
45 Sc	5601481.00	A	8834.00	0.16
51 V	97739.46	P	1501.00	1.54
52 Cr	100939.00	P	590.60	0.59
55 Mn	608606.31	P	4566.00	0.75
56 Fe	1138924.00	A	6969.00	0.61
59 Co	490205.00	P	3491.00	0.71
60 Ni	99326.61	P	516.30	0.52
63 Cu	264967.81	P	2197.00	0.83
66 Zn	343908.09	P	1214.00	0.35
72 Ge	614465.50	P	13730.00	2.23
72 Ge	187461.30	P	1630.00	0.87
72 Ge	1147956.00	A	6074.00	0.53
74 Ge	864635.81	A	18910.00	2.19
74 Ge	272305.59	P	5072.00	1.86
74 Ge	1539872.00	A	6274.00	0.41
75 As	14672.24	P	126.70	0.86
78 Se	17696.16	P	215.10	1.22
98 Mo	167135.09	P	1217.00	0.73
99		P		
106 Cd		P		
107 Ag	66015.49	P	391.70	0.59
108 Cd		P		
111 Cd	51188.87	P	648.60	1.27
115 In	2523010.00	A	41490.00	1.64
115 In	651421.88	P	11060.00	1.70
115 In	2947523.00	A	13310.00	0.45
118 Sn	141642.80	P	685.90	0.48
121 Sb	24301.69	P	116.30	0.48
125 Te	8554.01	P	105.50	1.23
133 Cs	593017.13	P	2146.00	0.36
137 Ba	175428.41	P	383.10	0.22
159 Tb	2810740.00	A	34110.00	1.21
205 Tl	229745.41	P	1491.00	0.65
206 (Pb)		P		
207 (Pb)		P		
208 Pb	793706.88	P	1319.00	0.17
209 Bi	2570904.00	A	20170.00	0.78
232 Th	316916.31	P	1353.00	0.43
238 U	286020.81	P	1446.00	0.51

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1410122.40	2.05	1445753.30	97.5	59.5 - 120.4	
45 Sc	2210721.00	2.25	2299572.00	96.1	59.5 - 120.4	
45 Sc	405233.31	2.88	412580.78	98.2	59.5 - 120.4	
45 Sc	5601481.00	0.16	5808191.00	96.4	59.5 - 120.4	
72 Ge	614465.50	2.23	646707.31	95.0	59.5 - 120.4	
72 Ge	187461.28	0.87	193143.80	97.1	59.5 - 120.4	
72 Ge	1147956.00	0.53	1193090.60	96.2	59.5 - 120.4	
74 Ge	864635.81	2.19	889973.81	97.2	59.5 - 120.4	
74 Ge	272305.63	1.86	279622.44	97.4	59.5 - 120.4	
74 Ge	1539872.30	0.41	1610800.90	95.6	59.5 - 120.4	
115 In	2523010.00	1.64	2650813.80	95.2	59.5 - 120.4	
115 In	651421.88	1.70	676978.25	96.2	59.5 - 120.4	
115 In	2947523.30	0.45	3115737.50	94.6	59.5 - 120.4	
159 Tb	2810739.80	1.21	2963204.00	94.9	59.5 - 120.4	
209 Bi	2570904.00	0.78	2708319.30	94.9	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\006CALS.D\006CALS.D#
Date Acquired: Mar 27 2017 03:52 pm
Operator:
Sample Name: Level 4 Std
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:50 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	1363669.00	A	21630.00	1.59
9 Be	480515.69	P	10130.00	2.11
11 B	42035.47	P	1024.00	2.44
27 Al	9573979.00	A	211800.00	2.21
45 Sc	2160002.00	A	19600.00	0.91
45 Sc	384628.41	P	15490.00	4.03
45 Sc	5400474.00	A	59890.00	1.11
51 V	467454.19	P	5533.00	1.18
52 Cr	502621.31	P	4258.00	0.85
55 Mn	2997820.00	A	42110.00	1.40
56 Fe	5553921.00	A	94150.00	1.70
59 Co	2459000.00	A	37470.00	1.52
60 Ni	500035.59	P	840.50	0.17
63 Cu	1346222.00	A	11140.00	0.83
66 Zn	1745394.00	A	16690.00	0.96
72 Ge	600150.38	P	4734.00	0.79
72 Ge	179301.00	P	6085.00	3.39
72 Ge	1113712.00	A	11670.00	1.05
74 Ge	841971.38	A	6164.00	0.73
74 Ge	262942.31	P	7890.00	3.00
74 Ge	1496920.00	A	7189.00	0.48
75 As	72351.17	P	855.50	1.18
78 Se	90630.24	P	447.60	0.49
98 Mo	841994.63	M	9236.00	1.10
99		P		
106 Cd		P		
107 Ag	310594.00	P	1928.00	0.62
108 Cd		P		
111 Cd	257814.20	P	770.50	0.30
115 In	2462902.00	A	45470.00	1.85
115 In	623654.38	P	11280.00	1.81
115 In	2871382.00	A	28510.00	0.99
118 Sn	717269.38	P	4770.00	0.67
121 Sb	113262.60	P	810.60	0.72
125 Te	43279.61	P	341.90	0.79
133 Cs	2954298.00	A	52390.00	1.77
137 Ba	925564.13	M	8662.00	0.94
159 Tb	2729098.00	A	34300.00	1.26
205 Tl	1209427.00	A	8698.00	0.72
206 (Pb)		A		
207 (Pb)		P		
208 Pb	4029896.00	A	26450.00	0.66
209 Bi	2530947.00	A	16180.00	0.64
232 Th	1570095.00	A	15930.00	1.01
238 U	1467589.00	A	28280.00	1.93

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1363668.60	1.59	1445753.30	94.3	59.5 - 120.4	
45 Sc	2160001.80	0.91	2299572.00	93.9	59.5 - 120.4	
45 Sc	384628.34	4.03	412580.78	93.2	59.5 - 120.4	
45 Sc	5400474.50	1.11	5808191.00	93.0	59.5 - 120.4	
72 Ge	600150.38	0.79	646707.31	92.8	59.5 - 120.4	
72 Ge	179301.03	3.39	193143.80	92.8	59.5 - 120.4	
72 Ge	1113712.00	1.05	1193090.60	93.3	59.5 - 120.4	
74 Ge	841971.38	0.73	889973.81	94.6	59.5 - 120.4	
74 Ge	262942.28	3.00	279622.44	94.0	59.5 - 120.4	
74 Ge	1496920.00	0.48	1610800.90	92.9	59.5 - 120.4	
115 In	2462902.00	1.85	2650813.80	92.9	59.5 - 120.4	
115 In	623654.44	1.81	676978.25	92.1	59.5 - 120.4	
115 In	2871382.30	0.99	3115737.50	92.2	59.5 - 120.4	
159 Tb	2729098.00	1.26	2963204.00	92.1	59.5 - 120.4	
209 Bi	2530947.00	0.64	2708319.30	93.5	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\007CALS.D\007CALS.D#
Date Acquired: Mar 27 2017 03:55 pm
Operator:
Sample Name: Level 5 Std
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:53 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	1415492.00	A	21590.00	1.53
9 Be	1038897.00	A	14100.00	1.36
11 B	69867.51	P	2021.00	2.89
27 Al	19574250.00	A	247900.00	1.27
45 Sc	2188805.00	A	62080.00	2.84
45 Sc	391864.19	P	7164.00	1.83
45 Sc	5637818.00	A	31700.00	0.56
51 V	936294.38	A	4778.00	0.51
52 Cr	1028529.00	A	7737.00	0.75
55 Mn	6123594.00	A	63130.00	1.03
56 Fe	11270720.00	A	159500.00	1.42
59 Co	4957761.00	A	2450.00	0.05
60 Ni	1004118.00	A	7415.00	0.74
63 Cu	2685809.00	A	20780.00	0.77
66 Zn	3482255.00	A	18330.00	0.53
72 Ge	603696.63	P	13050.00	2.16
72 Ge	182238.20	P	2596.00	1.42
72 Ge	1143649.00	A	5566.00	0.49
74 Ge	846027.50	A	25880.00	3.06
74 Ge	265692.81	P	393.00	0.15
74 Ge	1550448.00	A	19280.00	1.24
75 As	144972.70	P	1134.00	0.78
78 Se	183252.41	P	2011.00	1.10
98 Mo	1760508.00	A	695.20	0.04
99		P		
106 Cd		P		
107 Ag	653515.13	P	2163.00	0.33
108 Cd		P		
111 Cd	534998.38	P	1008.00	0.19
115 In	2530086.00	A	78610.00	3.11
115 In	649517.88	P	2881.00	0.44
115 In	3019299.00	A	29680.00	0.98
118 Sn	1504049.00	A	10240.00	0.68
121 Sb	225438.41	P	751.10	0.33
125 Te	89450.53	P	650.90	0.73
133 Cs	6077864.00	A	32820.00	0.54
137 Ba	1852401.00	A	13730.00	0.74
159 Tb	2862795.00	A	3218.00	0.11
205 Tl	2445156.00	A	6816.00	0.28
206 (Pb)		A		
207 (Pb)		A		
208 Pb	8320960.00	A	33090.00	0.40
209 Bi	2655185.00	A	18350.00	0.69
232 Th	3176983.00	A	6219.00	0.20
238 U	3011194.00	A	16050.00	0.53

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1415491.80	1.53	1445753.30	97.9	59.5 - 120.4	
45 Sc	2188805.00	2.84	2299572.00	95.2	59.5 - 120.4	
45 Sc	391864.25	1.83	412580.78	95.0	59.5 - 120.4	
45 Sc	5637818.00	0.56	5808191.00	97.1	59.5 - 120.4	
72 Ge	603696.63	2.16	646707.31	93.3	59.5 - 120.4	
72 Ge	182238.22	1.42	193143.80	94.4	59.5 - 120.4	
72 Ge	1143649.30	0.49	1193090.60	95.9	59.5 - 120.4	
74 Ge	846027.56	3.06	889973.81	95.1	59.5 - 120.4	
74 Ge	265692.78	0.15	279622.44	95.0	59.5 - 120.4	
74 Ge	1550447.60	1.24	1610800.90	96.3	59.5 - 120.4	
115 In	2530086.50	3.11	2650813.80	95.4	59.5 - 120.4	
115 In	649517.94	0.44	676978.25	95.9	59.5 - 120.4	
115 In	3019299.00	0.98	3115737.50	96.9	59.5 - 120.4	
159 Tb	2862794.50	0.11	2963204.00	96.6	59.5 - 120.4	
209 Bi	2655185.30	0.69	2708319.30	98.0	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Initial Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\008_QCS.D\008_QCS.D#
Date Acquired: Mar 27 2017 03:58 pm
Operator:
Sample Name: ICV
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: QCS
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	45.360	1.67	50.00	90.7	89 - 110	
11 B	6	3	20.030	2.63	20.00	100.2	89 - 110	
27 Al	72	3	100.300	0.33	100.00	100.3	89 - 110	
51 V	45	2	47.200	2.56	50.00	94.4	89 - 110	
52 Cr	45	2	48.630	2.74	50.00	97.3	89 - 110	
55 Mn	72	3	50.110	0.75	50.00	100.2	89 - 110	
56 Fe	45	1	105.600	1.20	100.00	105.6	89 - 110	
59 Co	72	3	51.430	0.55	50.00	102.9	89 - 110	
60 Ni	45	2	50.580	2.44	50.00	101.2	89 - 110	
63 Cu	45	2	48.590	3.15	50.00	97.2	89 - 110	
66 Zn	72	3	46.720	0.54	50.00	93.4	89 - 110	
75 As	45	2	48.760	2.87	50.00	97.5	89 - 110	
78 Se	45	1	52.570	1.64	50.00	105.1	89 - 110	
98 Mo	115	3	18.750	0.44	20.00	93.8	89 - 110	
107 Ag	115	3	20.220	0.62	20.00	101.1	89 - 110	
111 Cd	115	3	49.020	1.56	50.00	98.0	89 - 110	
118 Sn	115	3	40.980	1.05	50.00	82.0	89 - 110	Fail
121 Sb	115	3	20.010	1.22	20.00	100.1	89 - 110	
125 Te	115	3	48.440	1.64	50.00	96.9	89 - 110	
133 Cs	115	3	50.450	0.80	50.00	100.9	89 - 110	
137 Ba	115	3	48.520	1.28	50.00	97.0	89 - 110	
205 Tl	209	3	51.350	0.73	50.00	102.7	89 - 110	
208 Pb	209	3	50.390	0.34	50.00	100.8	89 - 110	
232 Th	209	3	49.510	0.30	50.00	99.0	89 - 110	
238 U	209	3	49.370	0.78	50.00	98.7	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1480152	2.07	1445753	102.4	60 - 120	
45 Sc	1	2206337	0.94	2299572	95.9	60 - 120	
45 Sc	2	414534	2.75	412581	100.5	60 - 120	
45 Sc	3	5879207	0.97	5808191	101.2	60 - 120	
72 Ge	1	608752	1.62	646707	94.1	60 - 120	
72 Ge	2	192307	2.31	193144	99.6	60 - 120	
72 Ge	3	1198045	0.79	1193091	100.4	60 - 120	
74 Ge	1	853095	1.25	889974	95.9	60 - 120	
74 Ge	2	278897	1.13	279622	99.7	60 - 120	
74 Ge	3	1614663	0.91	1610801	100.2	60 - 120	
115 In	1	2585273	0.65	2650814	97.5	60 - 120	
115 In	2	691458	2.50	676978	102.1	60 - 120	
115 In	3	3199147	1.17	3115738	102.7	60 - 120	
159 Tb	3	3050474	1.41	2963204	102.9	60 - 120	
209 Bi	3	2776746	0.20	2708319	102.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

1 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\009_CCB.D\009_CCB.D#
Date Acquired: Mar 27 2017 04:01 pm
Operator:
Sample Name: ICB
Misc Info:
Vial Number: 1203
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.035 ppb	11.68	0.150	
11 B	6	3	0.170 ppb	28.69	1.500	
27 Al	72	3	0.099 ppb	42.95	3.000	
51 V	45	2	-0.259 ppb	7.89	0.600	
52 Cr	45	2	0.020 ppb	29.31	1.500	
55 Mn	72	3	0.036 ppb	17.36	1.500	
56 Fe	45	1	0.198 ppb	55.01	12.000	
59 Co	72	3	0.024 ppb	25.17	0.150	
60 Ni	45	2	0.021 ppb	71.54	1.800	
63 Cu	45	2	0.000 ppb	6657.20	1.500	
66 Zn	72	3	0.004 ppb	1836.10	6.000	
75 As	45	2	0.017 ppb	535.31	0.600	
78 Se	45	1	0.145 ppb	21.45	0.300	
98 Mo	115	3	0.030 ppb	9.58	1.500	
107 Ag	115	3	0.008 ppb	52.55	0.150	
111 Cd	115	3	0.029 ppb	20.11	0.300	
118 Sn	115	3	0.145 ppb	48.25	0.300	
121 Sb	115	3	0.552 ppb	8.46	1.200	
125 Te	115	3	0.057 ppb	55.94	3.000	
133 Cs	115	3	0.031 ppb	1.04	0.600	
137 Ba	115	3	0.034 ppb	30.30	1.500	
205 Tl	209	3	0.041 ppb	6.22	0.300	
208 Pb	209	3	0.054 ppb	5.55	0.300	
232 Th	209	3	0.170 ppb	1.68	3.000	
238 U	209	3	0.028 ppb	13.84	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1376155	1.58	1445753	95.2	60 - 120	
45 Sc	1	2094559	2.94	2299572	91.1	60 - 120	
45 Sc	2	399235	4.10	412581	96.8	60 - 120	
45 Sc	3	5454934	2.07	5808191	93.9	60 - 120	
72 Ge	1	592039	2.56	646707	91.5	60 - 120	
72 Ge	2	187288	3.14	193144	97.0	60 - 120	
72 Ge	3	1123173	1.66	1193091	94.1	60 - 120	
74 Ge	1	819463	1.62	889974	92.1	60 - 120	
74 Ge	2	271997	3.57	279622	97.3	60 - 120	
74 Ge	3	1522285	1.54	1610801	94.5	60 - 120	
115 In	1	2438815	2.29	2650814	92.0	60 - 120	
115 In	2	662451	2.04	676978	97.9	60 - 120	
115 In	3	2938556	2.06	3115738	94.3	60 - 120	
159 Tb	3	2828629	1.78	2963204	95.5	60 - 120	
209 Bi	3	2560299	2.42	2708319	94.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\010_CCB.D\010_CCB.D#
Date Acquired: Mar 27 2017 04:04 pm
Operator:
Sample Name: ICSA
Misc Info:
Vial Number: 4510
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.024 ppb	5.19	0.150	
11 B	6	3	1.275 ppb	6.36	1.500	
27 Al	72	3	46190.000 ppb	0.84	3.000	Fail
51 V	45	2	-0.556 ppb	3.13	0.600	
52 Cr	45	2	0.216 ppb	12.80	1.500	
55 Mn	72	3	0.509 ppb	2.16	1.500	
56 Fe	45	1	45150.000 ppb	0.83	12.000	Fail
59 Co	72	3	0.214 ppb	4.21	0.150	Fail
60 Ni	45	2	0.103 ppb	40.16	1.800	
63 Cu	45	2	-0.503 ppb	7.65	1.500	
66 Zn	72	3	-1.041 ppb	2.59	6.000	
75 As	45	2	0.088 ppb	75.44	0.600	
78 Se	45	1	0.223 ppb	6.19	0.300	
98 Mo	115	3	957.600 ppb	0.88	1.500	Fail
107 Ag	115	3	0.067 ppb	3.89	0.150	
111 Cd	115	3	0.024 ppb	131.18	0.300	
118 Sn	115	3	-2.256 ppb	0.41	0.300	
121 Sb	115	3	0.364 ppb	5.40	1.200	
125 Te	115	3	0.115 ppb	57.76	3.000	
133 Cs	115	3	0.035 ppb	6.63	0.600	
137 Ba	115	3	0.159 ppb	3.83	1.500	
205 Tl	209	3	0.026 ppb	9.17	0.300	
208 Pb	209	3	0.074 ppb	3.00	0.300	
232 Th	209	3	0.155 ppb	8.60	3.000	
238 U	209	3	0.018 ppb	11.45	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1287580	1.47	1445753	89.1	60 - 120	
45 Sc	1	2126288	0.43	2299572	92.5	60 - 120	
45 Sc	2	380969	1.76	412581	92.3	60 - 120	
45 Sc	3	5419709	0.60	5808191	93.3	60 - 120	
72 Ge	1	582696	0.36	646707	90.1	60 - 120	
72 Ge	2	175125	2.31	193144	90.7	60 - 120	
72 Ge	3	1093249	0.59	1193091	91.6	60 - 120	
74 Ge	1	824768	0.95	889974	92.7	60 - 120	
74 Ge	2	255036	1.70	279622	91.2	60 - 120	
74 Ge	3	1462672	1.03	1610801	90.8	60 - 120	
115 In	1	2337336	0.79	2650814	88.2	60 - 120	
115 In	2	588697	0.52	676978	87.0	60 - 120	
115 In	3	2704338	1.33	3115738	86.8	60 - 120	
159 Tb	3	2610070	1.86	2963204	88.1	60 - 120	
209 Bi	3	2241517	0.58	2708319	82.8	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\011SMPL.D\011SMPL.D#
Date Acquired: Mar 27 2017 04:07 pm
Acq. Method: ACZ.M
Operator:
Sample Name: ICSAB
Misc Info:
Vial Number: 4511
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	18.720	18.720	ppb	1.03	200.00	
11 B	6	3	9.910	9.910	ppb	0.68	20.00	
27 Al	72	3	47,150.000	47150.000	ppb	1.17	1000.00	OCAL
51 V	45	2	19.400	19.400	ppb	0.15	200.00	
52 Cr	45	2	18.920	18.920	ppb	0.84	200.00	
55 Mn	72	3	19.330	19.330	ppb	0.92	200.00	
56 Fe	45	1	47,180.000	47180.000	ppb	1.87	1000.00	OCAL
59 Co	72	3	18.850	18.850	ppb	0.74	200.00	
60 Ni	45	2	18.310	18.310	ppb	0.27	500.00	
63 Cu	45	2	17.470	17.470	ppb	0.84	500.00	
66 Zn	72	3	17.660	17.660	ppb	1.92	1000.00	
75 As	45	2	20.680	20.680	ppb	0.94	200.00	
78 Se	45	1	20.440	20.440	ppb	0.98	500.00	
98 Mo	115	3	1,032.000	1032.000	ppb	2.03	200.00	OCAL
107 Ag	115	3	8.594	8.594	ppb	1.23	50.00	
111 Cd	115	3	20.150	20.150	ppb	0.64	200.00	
118 Sn	115	3	18.150	18.150	ppb	1.89	200.00	
121 Sb	115	3	10.550	10.550	ppb	1.04	25.00	
125 Te	115	3	20.590	20.590	ppb	2.04	200.00	
133 Cs	115	3	20.150	20.150	ppb	1.41	200.00	
137 Ba	115	3	21.630	21.630	ppb	1.52	500.00	
205 Tl	209	3	19.680	19.680	ppb	0.76	200.00	
208 Pb	209	3	19.710	19.710	ppb	0.63	500.00	
232 Th	209	3	47.400	47.400	ppb	0.33	200.00	
238 U	209	3	20.550	20.550	ppb	0.57	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1307719	2.09	1445753	90.5	59.5 - 120	
45 Sc	1	2135821	1.07	2299572	92.9	59.5 - 120	
45 Sc	2	387066	1.07	412581	93.8	59.5 - 120	
45 Sc	3	5440972	0.15	5808191	93.7	59.5 - 120	
72 Ge	1	585423	0.63	646707	90.5	59.5 - 120	
72 Ge	2	177669	0.38	193144	92.0	59.5 - 120	
72 Ge	3	1118283	1.08	1193091	93.7	59.5 - 120	
74 Ge	1	823988	1.02	889974	92.6	59.5 - 120	
74 Ge	2	258278	0.16	279622	92.4	59.5 - 120	
74 Ge	3	1504180	0.36	1610801	93.4	59.5 - 120	
115 In	1	2333786	0.47	2650814	88.0	59.5 - 120	
115 In	2	587130	1.45	676978	86.7	59.5 - 120	
115 In	3	2698849	1.31	3115738	86.6	59.5 - 120	
159 Tb	3	2610035	1.07	2963204	88.1	59.5 - 120	
209 Bi	3	2255159	0.42	2708319	83.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\012_CCB.D\012_CCB.D#
Date Acquired: Mar 27 2017 04:11 pm
Operator:
Sample Name: wash
Misc Info:
Vial Number: 4512
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.011 ppb	17.49	0.150	
11 B	6	3	-0.068 ppb	51.95	1.500	
27 Al	72	3	21.290 ppb	4.96	3.000	Fail
51 V	45	2	-0.777 ppb	2.46	0.600	
52 Cr	45	2	-0.044 ppb	7.11	1.500	
55 Mn	72	3	-0.157 ppb	5.27	1.500	
56 Fe	45	1	34.370 ppb	8.17	12.000	Fail
59 Co	72	3	0.011 ppb	25.06	0.150	
60 Ni	45	2	-0.096 ppb	10.16	1.800	
63 Cu	45	2	-0.659 ppb	0.88	1.500	
66 Zn	72	3	-2.481 ppb	1.96	6.000	
75 As	45	2	-0.112 ppb	35.36	0.600	
78 Se	45	1	-0.017 ppb	34.16	0.300	
98 Mo	115	3	0.638 ppb	4.94	1.500	
107 Ag	115	3	-0.002 ppb	62.30	0.150	
111 Cd	115	3	0.013 ppb	31.27	0.300	
118 Sn	115	3	-2.280 ppb	0.30	0.300	
121 Sb	115	3	0.034 ppb	21.74	1.200	
125 Te	115	3	0.058 ppb	30.86	3.000	
133 Cs	115	3	0.004 ppb	25.41	0.600	
137 Ba	115	3	-0.164 ppb	2.24	1.500	
205 Tl	209	3	0.040 ppb	9.82	0.300	
208 Pb	209	3	0.012 ppb	46.15	0.300	
232 Th	209	3	0.026 ppb	9.21	3.000	
238 U	209	3	0.007 ppb	25.71	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1423791	0.91	1445753	98.5	60 - 120	
45 Sc	1	2258943	0.84	2299572	98.2	60 - 120	
45 Sc	2	415906	1.55	412581	100.8	60 - 120	
45 Sc	3	5826965	0.76	5808191	100.3	60 - 120	
72 Ge	1	641068	0.49	646707	99.1	60 - 120	
72 Ge	2	193937	2.15	193144	100.4	60 - 120	
72 Ge	3	1184104	0.75	1193091	99.2	60 - 120	
74 Ge	1	899286	0.50	889974	101.0	60 - 120	
74 Ge	2	283641	1.01	279622	101.4	60 - 120	
74 Ge	3	1595209	0.95	1610801	99.0	60 - 120	
115 In	1	2582874	0.46	2650814	97.4	60 - 120	
115 In	2	668888	0.84	676978	98.8	60 - 120	
115 In	3	3012316	0.65	3115738	96.7	60 - 120	
159 Tb	3	2815795	0.16	2963204	95.0	60 - 120	
209 Bi	3	2567031	0.80	2708319	94.8	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\013SMPL.D\013SMPL.D#
Date Acquired: Mar 27 2017 04:14 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG419750PBS
Misc Info:
Vial Number: 3101
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	2.588	0.005	ppb	36.81	200.00	
11 B	6	3	271.150	0.542	ppb	25.61	20.00	
27 Al	72	3	1,103.000	2.206	ppb	6.34	1000.00	
51 V	45	2	168.150	0.336	ppb	12.65	200.00	
52 Cr	45	2	63.750	0.128	ppb	7.63	200.00	
55 Mn	72	3	11.055	0.022	ppb	68.20	200.00	
56 Fe	45	1	3,420.500	6.841	ppb	16.87	1000.00	
59 Co	72	3	-0.881	-0.002	ppb	67.92	200.00	
60 Ni	45	2	-11.935	-0.024	ppb	97.24	500.00	
63 Cu	45	2	-258.800	-0.518	ppb	4.61	500.00	
66 Zn	72	3	483.550	0.967	ppb	18.96	1000.00	
75 As	45	2	161.600	0.323	ppb	33.69	200.00	
78 Se	45	1	123.800	0.248	ppb	15.32	500.00	
98 Mo	115	3	52.350	0.105	ppb	4.32	200.00	
107 Ag	115	3	-2.689	-0.005	ppb	33.05	50.00	
111 Cd	115	3	-1.446	-0.003	ppb	238.21	200.00	
118 Sn	115	3	3,061.500	6.123	ppb	1.45	200.00	
121 Sb	115	3	87.800	0.176	ppb	2.46	25.00	
125 Te	115	3	9.355	0.019	ppb	98.34	200.00	
133 Cs	115	3	-0.607	-0.001	ppb	49.74	200.00	
137 Ba	115	3	-78.000	-0.156	ppb	2.90	500.00	
205 Tl	209	3	5.985	0.012	ppb	23.58	200.00	
208 Pb	209	3	31.165	0.062	ppb	10.86	500.00	
232 Th	209	3	-0.048	0.000	ppb	2952.50	200.00	
238 U	209	3	-1.495	-0.003	ppb	13.88	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1442250	1.07	1445753	99.8	59.5 - 120	
45 Sc	1	2171479	0.30	2299572	94.4	59.5 - 120	
45 Sc	2	395268	0.82	412581	95.8	59.5 - 120	
45 Sc	3	5587740	0.59	5808191	96.2	59.5 - 120	
72 Ge	1	605664	0.28	646707	93.7	59.5 - 120	
72 Ge	2	182390	0.36	193144	94.4	59.5 - 120	
72 Ge	3	1145283	1.10	1193091	96.0	59.5 - 120	
74 Ge	1	842070	1.17	889974	94.6	59.5 - 120	
74 Ge	2	265227	0.71	279622	94.9	59.5 - 120	
74 Ge	3	1533442	1.40	1610801	95.2	59.5 - 120	
115 In	1	2555291	0.56	2650814	96.4	59.5 - 120	
115 In	2	653034	0.09	676978	96.5	59.5 - 120	
115 In	3	3008973	0.86	3115738	96.6	59.5 - 120	
159 Tb	3	2778681	1.55	2963204	93.8	59.5 - 120	
209 Bi	3	2500491	1.65	2708319	92.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\014SMPL.D\014SMPL.D#
Date Acquired: Mar 27 2017 04:17 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG419750LCSS
Misc Info:
Vial Number: 3102
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 5000.00
Autodil Factor: Undiluted
Final Dil Factor: 5000.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	91,700.000	18.340	ppb	1.35	200.00	
11 B	6	3	##########	26.500	ppb	1.18	20.00	OCAL
27 Al	72	3	##########	1736.000	ppb	1.15	1000.00	OCAL
51 V	45	2	##########	21.870	ppb	2.26	200.00	
52 Cr	45	2	##########	28.000	ppb	0.86	200.00	
55 Mn	72	3	##########	60.460	ppb	0.59	200.00	
56 Fe	45	1	##########	3061.000	ppb	2.28	1000.00	OCAL
59 Co	72	3	##########	31.720	ppb	1.24	200.00	
60 Ni	45	2	##########	26.240	ppb	0.47	500.00	
63 Cu	45	2	##########	33.360	ppb	1.47	500.00	
66 Zn	72	3	##########	37.570	ppb	1.30	1000.00	
75 As	45	2	##########	28.180	ppb	2.05	200.00	
78 Se	45	1	##########	35.460	ppb	2.12	500.00	
98 Mo	115	3	##########	23.770	ppb	1.67	200.00	
107 Ag	115	3	32,115.000	6.423	ppb	1.57	50.00	
111 Cd	115	3	88,350.000	17.670	ppb	0.35	200.00	
118 Sn	115	3	##########	27.630	ppb	1.02	200.00	
121 Sb	115	3	94,350.000	18.870	ppb	1.03	25.00	
125 Te	115	3	79.850	0.016	ppb	93.55	200.00	
133 Cs	115	3	1,485.500	0.297	ppb	2.13	200.00	
137 Ba	115	3	##########	40.670	ppb	1.57	500.00	
205 Tl	209	3	##########	28.230	ppb	1.67	200.00	
208 Pb	209	3	##########	28.880	ppb	0.57	500.00	
232 Th	209	3	22,060.000	4.412	ppb	0.16	200.00	
238 U	209	3	16,970.000	3.394	ppb	0.29	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1385930	1.96	1445753	95.9	59.5 - 120	
45 Sc	1	2253122	2.05	2299572	98.0	59.5 - 120	
45 Sc	2	411850	0.56	412581	99.8	59.5 - 120	
45 Sc	3	5765303	0.23	5808191	99.3	59.5 - 120	
72 Ge	1	624846	0.92	646707	96.6	59.5 - 120	
72 Ge	2	191176	0.69	193144	99.0	59.5 - 120	
72 Ge	3	1165827	0.56	1193091	97.7	59.5 - 120	
74 Ge	1	879535	0.99	889974	98.8	59.5 - 120	
74 Ge	2	277566	0.46	279622	99.3	59.5 - 120	
74 Ge	3	1570197	0.97	1610801	97.5	59.5 - 120	
115 In	1	2573196	2.55	2650814	97.1	59.5 - 120	
115 In	2	651433	1.86	676978	96.2	59.5 - 120	
115 In	3	2947892	0.81	3115738	94.6	59.5 - 120	
159 Tb	3	2727844	0.76	2963204	92.1	59.5 - 120	
209 Bi	3	2504106	0.19	2708319	92.5	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\015SMPL.D\015SMPL.D#
Date Acquired: Mar 27 2017 04:20 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG419750LCSSD
Misc Info:
Vial Number: 3103
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 5000.00
Autodil Factor: Undiluted
Final Dil Factor: 5000.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	88,500.000	17.700	ppb	1.72	200.00	
11 B	6	3	##########	25.980	ppb	0.60	20.00	OCAL
27 Al	72	3	##########	1682.000	ppb	0.98	1000.00	OCAL
51 V	45	2	##########	21.890	ppb	0.98	200.00	
52 Cr	45	2	##########	28.020	ppb	0.94	200.00	
55 Mn	72	3	##########	61.970	ppb	1.96	200.00	
56 Fe	45	1	##########	2959.000	ppb	1.56	1000.00	OCAL
59 Co	72	3	##########	32.120	ppb	1.45	200.00	
60 Ni	45	2	##########	26.670	ppb	0.85	500.00	
63 Cu	45	2	##########	32.590	ppb	2.09	500.00	
66 Zn	72	3	##########	36.220	ppb	0.87	1000.00	
75 As	45	2	##########	27.620	ppb	1.52	200.00	
78 Se	45	1	##########	35.640	ppb	1.00	500.00	
98 Mo	115	3	##########	24.450	ppb	0.66	200.00	
107 Ag	115	3	30,630.000	6.126	ppb	0.73	50.00	
111 Cd	115	3	89,450.000	17.890	ppb	0.34	200.00	
118 Sn	115	3	##########	27.680	ppb	0.88	200.00	
121 Sb	115	3	##########	20.090	ppb	1.27	25.00	
125 Te	115	3	274.400	0.055	ppb	28.57	200.00	
133 Cs	115	3	1,414.500	0.283	ppb	4.21	200.00	
137 Ba	115	3	##########	38.780	ppb	1.12	500.00	
205 Tl	209	3	##########	28.610	ppb	0.63	200.00	
208 Pb	209	3	##########	28.610	ppb	0.09	500.00	
232 Th	209	3	20,505.000	4.101	ppb	1.73	200.00	
238 U	209	3	17,545.000	3.509	ppb	1.15	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1401931	1.41	1445753	97.0	59.5 - 120	
45 Sc	1	2234316	1.56	2299572	97.2	59.5 - 120	
45 Sc	2	409330	1.95	412581	99.2	59.5 - 120	
45 Sc	3	5729932	0.97	5808191	98.7	59.5 - 120	
72 Ge	1	620936	0.48	646707	96.0	59.5 - 120	
72 Ge	2	190228	1.14	193144	98.5	59.5 - 120	
72 Ge	3	1152480	1.09	1193091	96.6	59.5 - 120	
74 Ge	1	859145	0.92	889974	96.5	59.5 - 120	
74 Ge	2	277853	1.52	279622	99.4	59.5 - 120	
74 Ge	3	1547734	0.67	1610801	96.1	59.5 - 120	
115 In	1	2528414	1.44	2650814	95.4	59.5 - 120	
115 In	2	645322	1.11	676978	95.3	59.5 - 120	
115 In	3	2882338	0.75	3115738	92.5	59.5 - 120	
159 Tb	3	2671829	0.10	2963204	90.2	59.5 - 120	
209 Bi	3	2413953	0.92	2708319	89.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\016SMPL.D\016SMPL.D#
Date Acquired: Mar 27 2017 04:24 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-01
Misc Info:
Vial Number: 3104
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	464.398	0.920	ppb	4.02	200.00	
11 B	6	3	19,099.100	37.820	ppb	2.09	20.00	OCAL
27 Al	72	3	##########	11880.000	ppb	0.38	1000.00	OCAL
51 V	45	2	38,046.700	75.340	ppb	1.33	200.00	
52 Cr	45	2	99,485.000	197.000	ppb	1.13	200.00	
55 Mn	72	3	75,952.000	150.400	ppb	0.58	200.00	
56 Fe	45	1	##########	29310.000	ppb	0.63	1000.00	OCAL
59 Co	72	3	8,716.300	17.260	ppb	0.54	200.00	
60 Ni	45	2	96,909.500	191.900	ppb	2.07	500.00	
63 Cu	45	2	84,032.000	166.400	ppb	3.15	500.00	
66 Zn	72	3	##########	781.100	ppb	1.16	1000.00	
75 As	45	2	10,483.800	20.760	ppb	3.27	200.00	
78 Se	45	1	16,942.750	33.550	ppb	0.56	500.00	
98 Mo	115	3	8,206.250	16.250	ppb	0.22	200.00	
107 Ag	115	3	150.692	0.298	ppb	3.47	50.00	
111 Cd	115	3	1,505.910	2.982	ppb	3.82	200.00	
118 Sn	115	3	3,767.805	7.461	ppb	2.09	200.00	
121 Sb	115	3	679.225	1.345	ppb	0.36	25.00	
125 Te	115	3	30.532	0.060	ppb	33.13	200.00	
133 Cs	115	3	1,511.465	2.993	ppb	1.33	200.00	
137 Ba	115	3	53,833.000	106.600	ppb	0.64	500.00	
205 Tl	209	3	564.085	1.117	ppb	1.44	200.00	
208 Pb	209	3	6,100.400	12.080	ppb	0.66	500.00	
232 Th	209	3	4,247.555	8.411	ppb	1.06	200.00	
238 U	209	3	7,105.350	14.070	ppb	0.42	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1407863	3.22	1445753	97.4	59.5 - 120	
45 Sc	1	2231518	0.22	2299572	97.0	59.5 - 120	
45 Sc	2	400117	3.56	412581	97.0	59.5 - 120	
45 Sc	3	5737097	1.18	5808191	98.8	59.5 - 120	
72 Ge	1	592210	0.49	646707	91.6	59.5 - 120	
72 Ge	2	177223	1.77	193144	91.8	59.5 - 120	
72 Ge	3	1130216	1.39	1193091	94.7	59.5 - 120	
74 Ge	1	838725	2.06	889974	94.2	59.5 - 120	
74 Ge	2	257774	0.98	279622	92.2	59.5 - 120	
74 Ge	3	1504635	0.78	1610801	93.4	59.5 - 120	
115 In	1	2424896	0.34	2650814	91.5	59.5 - 120	
115 In	2	604146	1.83	676978	89.2	59.5 - 120	
115 In	3	2828248	0.90	3115738	90.8	59.5 - 120	
159 Tb	3	2623277	1.83	2963204	88.5	59.5 - 120	
209 Bi	3	2306468	0.62	2708319	85.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\017SMPL.D\017SMPL.D#
Date Acquired: Mar 27 2017 04:27 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-01MS
Misc Info:
Vial Number: 3105
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	25,699.450	50.890	ppb	0.73	200.00	
11 B	6	3	27,209.400	53.880	ppb	1.21	20.00	OCAL
27 Al	72	3	##########	13700.000	ppb	1.44	1000.00	OCAL
51 V	45	2	66,912.500	132.500	ppb	1.19	200.00	
52 Cr	45	2	##########	287.800	ppb	1.56	200.00	OCAL
55 Mn	72	3	##########	209.900	ppb	0.42	200.00	OCAL
56 Fe	45	1	##########	30610.000	ppb	2.12	1000.00	OCAL
59 Co	72	3	36,471.100	72.220	ppb	0.53	200.00	
60 Ni	45	2	##########	248.400	ppb	1.26	500.00	
63 Cu	45	2	##########	224.400	ppb	1.58	500.00	
66 Zn	72	3	##########	862.200	ppb	0.94	1000.00	
75 As	45	2	36,031.750	71.350	ppb	2.53	200.00	
78 Se	45	1	30,335.350	60.070	ppb	2.31	500.00	
98 Mo	115	3	33,314.850	65.970	ppb	1.78	200.00	
107 Ag	115	3	5,580.250	11.050	ppb	1.91	50.00	
111 Cd	115	3	28,239.600	55.920	ppb	1.14	200.00	
118 Sn	115	3	19,260.700	38.140	ppb	0.87	200.00	
121 Sb	115	3	1,766.490	3.498	ppb	1.05	25.00	
125 Te	115	3	12,726.000	25.200	ppb	2.04	200.00	
133 Cs	115	3	12,539.150	24.830	ppb	1.05	200.00	
137 Ba	115	3	83,577.500	165.500	ppb	1.28	500.00	
205 Tl	209	3	27,143.750	53.750	ppb	0.53	200.00	
208 Pb	209	3	32,683.600	64.720	ppb	0.89	500.00	
232 Th	209	3	13,670.350	27.070	ppb	0.93	200.00	
238 U	209	3	21,194.850	41.970	ppb	1.39	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1503645	2.21	1445753	104.0	59.5 - 120	
45 Sc	1	2237471	2.85	2299572	97.3	59.5 - 120	
45 Sc	2	410756	0.82	412581	99.6	59.5 - 120	
45 Sc	3	6076458	1.97	5808191	104.6	59.5 - 120	
72 Ge	1	593065	3.40	646707	91.7	59.5 - 120	
72 Ge	2	183381	0.94	193144	94.9	59.5 - 120	
72 Ge	3	1192343	0.99	1193091	99.9	59.5 - 120	
74 Ge	1	834086	1.73	889974	93.7	59.5 - 120	
74 Ge	2	264067	0.57	279622	94.4	59.5 - 120	
74 Ge	3	1583067	1.01	1610801	98.3	59.5 - 120	
115 In	1	2475155	3.26	2650814	93.4	59.5 - 120	
115 In	2	638638	0.68	676978	94.3	59.5 - 120	
115 In	3	3054937	2.40	3115738	98.0	59.5 - 120	
159 Tb	3	2860097	1.95	2963204	96.5	59.5 - 120	
209 Bi	3	2513485	0.09	2708319	92.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\018SMPL.D\018SMPL.D#
Date Acquired: Mar 27 2017 04:30 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-01MSD
Misc Info:
Vial Number: 3106
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	25,674.200	50.840	ppb	1.25	200.00	
11 B	6	3	26,280.200	52.040	ppb	1.16	20.00	OCAL
27 Al	72	3	##########	13130.000	ppb	1.31	1000.00	OCAL
51 V	45	2	65,852.000	130.400	ppb	2.71	200.00	
52 Cr	45	2	##########	274.800	ppb	2.50	200.00	OCAL
55 Mn	72	3	##########	206.500	ppb	0.37	200.00	OCAL
56 Fe	45	1	##########	30540.000	ppb	2.25	1000.00	OCAL
59 Co	72	3	36,067.100	71.420	ppb	0.57	200.00	
60 Ni	45	2	##########	247.500	ppb	3.13	500.00	
63 Cu	45	2	##########	223.200	ppb	4.06	500.00	
66 Zn	72	3	##########	847.700	ppb	0.65	1000.00	
75 As	45	2	35,511.600	70.320	ppb	2.59	200.00	
78 Se	45	1	30,658.550	60.710	ppb	1.66	500.00	
98 Mo	115	3	33,319.900	65.980	ppb	1.27	200.00	
107 Ag	115	3	5,620.650	11.130	ppb	0.87	50.00	
111 Cd	115	3	28,335.550	56.110	ppb	1.03	200.00	
118 Sn	115	3	19,316.250	38.250	ppb	0.67	200.00	
121 Sb	115	3	1,723.565	3.413	ppb	0.80	25.00	
125 Te	115	3	12,640.150	25.030	ppb	1.77	200.00	
133 Cs	115	3	12,493.700	24.740	ppb	1.33	200.00	
137 Ba	115	3	82,466.500	163.300	ppb	0.73	500.00	
205 Tl	209	3	27,224.550	53.910	ppb	0.86	200.00	
208 Pb	209	3	32,688.650	64.730	ppb	0.70	500.00	
232 Th	209	3	13,675.400	27.080	ppb	1.72	200.00	
238 U	209	3	21,139.300	41.860	ppb	0.66	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1520723	2.34	1445753	105.2	59.5 - 120	
45 Sc	1	2320039	2.14	2299572	100.9	59.5 - 120	
45 Sc	2	423692	4.59	412581	102.7	59.5 - 120	
45 Sc	3	6130618	1.03	5808191	105.6	59.5 - 120	
72 Ge	1	613632	1.63	646707	94.9	59.5 - 120	
72 Ge	2	187580	3.58	193144	97.1	59.5 - 120	
72 Ge	3	1204522	0.81	1193091	101.0	59.5 - 120	
74 Ge	1	869494	0.85	889974	97.7	59.5 - 120	
74 Ge	2	272849	3.82	279622	97.6	59.5 - 120	
74 Ge	3	1590805	1.11	1610801	98.8	59.5 - 120	
115 In	1	2633766	1.84	2650814	99.4	59.5 - 120	
115 In	2	674720	3.60	676978	99.7	59.5 - 120	
115 In	3	3110424	1.75	3115738	99.8	59.5 - 120	
159 Tb	3	2956470	1.26	2963204	99.8	59.5 - 120	
209 Bi	3	2583310	1.58	2708319	95.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\019SMPL.D\019SMPL.D#
Date Acquired: Mar 27 2017 04:33 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-02
Misc Info:
Vial Number: 3107
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,021.000	2.042	ppb	1.63	200.00	
11 B	6	3	20,480.000	40.960	ppb	1.35	20.00	OCAL
27 Al	72	3	##########	19900.000	ppb	1.57	1000.00	OCAL
51 V	45	2	77,950.000	155.900	ppb	0.65	200.00	
52 Cr	45	2	##########	346.900	ppb	1.35	200.00	OCAL
55 Mn	72	3	40,940.000	81.880	ppb	1.52	200.00	
56 Fe	45	1	##########	65420.000	ppb	1.07	1000.00	OCAL
59 Co	72	3	2,862.000	5.724	ppb	0.84	200.00	
60 Ni	45	2	67,100.000	134.200	ppb	0.76	500.00	
63 Cu	45	2	98,400.000	196.800	ppb	1.28	500.00	
66 Zn	72	3	##########	362.600	ppb	0.83	1000.00	
75 As	45	2	25,375.000	50.750	ppb	1.58	200.00	
78 Se	45	1	22,610.000	45.220	ppb	0.43	500.00	
98 Mo	115	3	6,075.000	12.150	ppb	0.84	200.00	
107 Ag	115	3	232.200	0.464	ppb	4.32	50.00	
111 Cd	115	3	1,696.000	3.392	ppb	3.55	200.00	
118 Sn	115	3	3,927.500	7.855	ppb	1.90	200.00	
121 Sb	115	3	1,313.500	2.627	ppb	1.60	25.00	
125 Te	115	3	98.950	0.198	ppb	7.31	200.00	
133 Cs	115	3	1,453.500	2.907	ppb	1.31	200.00	
137 Ba	115	3	77,300.000	154.600	ppb	0.55	500.00	
205 Tl	209	3	304.500	0.609	ppb	4.00	200.00	
208 Pb	209	3	7,150.000	14.300	ppb	0.58	500.00	
232 Th	209	3	4,720.500	9.441	ppb	0.43	200.00	
238 U	209	3	38,165.000	76.330	ppb	1.44	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1428707	1.98	1445753	98.8	59.5 - 120	
45 Sc	1	2231352	0.14	2299572	97.0	59.5 - 120	
45 Sc	2	399237	1.82	412581	96.8	59.5 - 120	
45 Sc	3	5816333	1.04	5808191	100.1	59.5 - 120	
72 Ge	1	583228	0.36	646707	90.2	59.5 - 120	
72 Ge	2	179417	1.82	193144	92.9	59.5 - 120	
72 Ge	3	1158501	0.75	1193091	97.1	59.5 - 120	
74 Ge	1	825695	0.16	889974	92.8	59.5 - 120	
74 Ge	2	258705	1.31	279622	92.5	59.5 - 120	
74 Ge	3	1517945	0.57	1610801	94.2	59.5 - 120	
115 In	1	2469044	0.30	2650814	93.1	59.5 - 120	
115 In	2	619236	0.74	676978	91.5	59.5 - 120	
115 In	3	2880694	0.92	3115738	92.5	59.5 - 120	
159 Tb	3	2763166	0.81	2963204	93.2	59.5 - 120	
209 Bi	3	2361573	0.81	2708319	87.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\020SMPL.D\020SMPL.D#
Date Acquired: Mar 27 2017 04:36 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-03
Misc Info:
Vial Number: 3108
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	477.000	0.954	ppb	2.41	200.00	
11 B	6	3	18,440.000	36.880	ppb	1.50	20.00	OCAL
27 Al	72	3	##########	12470.000	ppb	2.24	1000.00	OCAL
51 V	45	2	25,465.000	50.930	ppb	0.65	200.00	
52 Cr	45	2	##########	279.900	ppb	1.21	200.00	OCAL
55 Mn	72	3	##########	291.400	ppb	1.69	200.00	OCAL
56 Fe	45	1	##########	20100.000	ppb	2.46	1000.00	OCAL
59 Co	72	3	8,625.000	17.250	ppb	1.32	200.00	
60 Ni	45	2	57,850.000	115.700	ppb	1.35	500.00	
63 Cu	45	2	28,625.000	57.250	ppb	1.78	500.00	
66 Zn	72	3	##########	338.600	ppb	1.18	1000.00	
75 As	45	2	5,705.000	11.410	ppb	4.65	200.00	
78 Se	45	1	2,482.000	4.964	ppb	1.03	500.00	
98 Mo	115	3	1,426.000	2.852	ppb	2.23	200.00	
107 Ag	115	3	83.650	0.167	ppb	3.88	50.00	
111 Cd	115	3	761.000	1.522	ppb	5.63	200.00	
118 Sn	115	3	3,417.000	6.834	ppb	1.74	200.00	
121 Sb	115	3	317.850	0.636	ppb	3.56	25.00	
125 Te	115	3	45.790	0.092	ppb	29.44	200.00	
133 Cs	115	3	995.000	1.990	ppb	0.77	200.00	
137 Ba	115	3	30,400.000	60.800	ppb	1.13	500.00	
205 Tl	209	3	192.850	0.386	ppb	4.64	200.00	
208 Pb	209	3	4,166.500	8.333	ppb	0.80	500.00	
232 Th	209	3	3,382.000	6.764	ppb	0.89	200.00	
238 U	209	3	2,987.000	5.974	ppb	2.28	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1305504	11.96	1445753	90.3	59.5 - 120	
45 Sc	1	2173482	2.22	2299572	94.5	59.5 - 120	
45 Sc	2	382956	1.80	412581	92.8	59.5 - 120	
45 Sc	3	5221514	14.56	5808191	89.9	59.5 - 120	
72 Ge	1	572785	1.23	646707	88.6	59.5 - 120	
72 Ge	2	173880	0.87	193144	90.0	59.5 - 120	
72 Ge	3	1028203	12.92	1193091	86.2	59.5 - 120	
74 Ge	1	815529	0.80	889974	91.6	59.5 - 120	
74 Ge	2	249417	0.82	279622	89.2	59.5 - 120	
74 Ge	3	1370991	13.92	1610801	85.1	59.5 - 120	
115 In	1	2438400	1.53	2650814	92.0	59.5 - 120	
115 In	2	602948	1.13	676978	89.1	59.5 - 120	
115 In	3	2661990	13.71	3115738	85.4	59.5 - 120	
159 Tb	3	2508694	13.15	2963204	84.7	59.5 - 120	
209 Bi	3	2164675	13.35	2708319	79.9	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\021_CCV.D\021_CCV.D#
Date Acquired: Mar 27 2017 04:39 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	97.270	1.29	100.00	97.3	89 - 110	
11 B	6	3	10.770	0.50	10.00	107.7	89 - 110	
27 Al	72	3	505.700	1.92	500.00	101.1	89 - 110	
51 V	45	2	101.100	2.13	100.00	101.1	89 - 110	
52 Cr	45	2	100.000	2.36	100.00	100.0	89 - 110	
55 Mn	72	3	102.300	1.88	100.00	102.3	89 - 110	
56 Fe	45	1	512.000	3.37	500.00	102.4	89 - 110	
59 Co	72	3	104.400	2.07	100.00	104.4	89 - 110	
60 Ni	45	2	254.800	1.82	250.00	101.9	89 - 110	
63 Cu	45	2	257.200	1.72	250.00	102.9	89 - 110	
66 Zn	72	3	515.900	1.87	500.00	103.2	89 - 110	
75 As	45	2	100.600	2.20	100.00	100.6	89 - 110	
78 Se	45	1	250.800	2.09	250.00	100.3	89 - 110	
98 Mo	115	3	103.500	1.72	100.00	103.5	89 - 110	
107 Ag	115	3	25.140	2.22	25.00	100.6	89 - 110	
111 Cd	115	3	100.500	1.50	100.00	100.5	89 - 110	
118 Sn	115	3	98.680	1.68	100.00	98.7	89 - 110	
121 Sb	115	3	12.960	1.32	12.50	103.7	89 - 110	
125 Te	115	3	99.810	1.53	100.00	99.8	89 - 110	
133 Cs	115	3	101.000	1.37	100.00	101.0	89 - 110	
137 Ba	115	3	260.800	2.25	250.00	104.3	89 - 110	
205 Tl	209	3	103.000	3.06	100.00	103.0	89 - 110	
208 Pb	209	3	253.400	1.49	250.00	101.4	89 - 110	
232 Th	209	3	103.800	2.03	100.00	103.8	89 - 110	
238 U	209	3	102.300	1.46	100.00	102.3	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1366207	1.88	1445753	94.5	60 - 120	
45 Sc	1	2167582	2.04	2299572	94.3	60 - 120	
45 Sc	2	388581	1.35	412581	94.2	60 - 120	
45 Sc	3	5479617	2.04	5808191	94.3	60 - 120	
72 Ge	1	597789	0.48	646707	92.4	60 - 120	
72 Ge	2	182664	0.73	193144	94.6	60 - 120	
72 Ge	3	1120156	2.29	1193091	93.9	60 - 120	
74 Ge	1	844871	1.08	889974	94.9	60 - 120	
74 Ge	2	265799	1.00	279622	95.1	60 - 120	
74 Ge	3	1520624	0.56	1610801	94.4	60 - 120	
115 In	1	2520116	1.24	2650814	95.1	60 - 120	
115 In	2	634758	0.38	676978	93.8	60 - 120	
115 In	3	2885977	1.76	3115738	92.6	60 - 120	
159 Tb	3	2665113	1.94	2963204	89.9	60 - 120	
209 Bi	3	2437363	1.77	2708319	90.0	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\022_CCB.D\022_CCB.D#
Date Acquired: Mar 27 2017 04:42 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1203
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.051 ppb	24.03	0.150	
11 B	6	3	0.388 ppb	45.24	1.500	
27 Al	72	3	1.166 ppb	2.93	3.000	
51 V	45	2	-0.230 ppb	11.78	0.600	
52 Cr	45	2	0.066 ppb	24.54	1.500	
55 Mn	72	3	-0.050 ppb	18.50	1.500	
56 Fe	45	1	4.117 ppb	6.18	12.000	
59 Co	72	3	0.030 ppb	11.31	0.150	
60 Ni	45	2	0.077 ppb	46.16	1.800	
63 Cu	45	2	0.068 ppb	72.44	1.500	
66 Zn	72	3	-0.063 ppb	171.10	6.000	
75 As	45	2	0.021 ppb	227.79	0.600	
78 Se	45	1	0.195 ppb	4.27	0.300	
98 Mo	115	3	0.053 ppb	10.14	1.500	
107 Ag	115	3	0.010 ppb	31.40	0.150	
111 Cd	115	3	0.036 ppb	35.47	0.300	
118 Sn	115	3	0.188 ppb	46.76	0.300	
121 Sb	115	3	0.279 ppb	8.98	1.200	
125 Te	115	3	0.109 ppb	21.92	3.000	
133 Cs	115	3	0.041 ppb	10.89	0.600	
137 Ba	115	3	0.061 ppb	42.22	1.500	
205 Tl	209	3	0.050 ppb	13.21	0.300	
208 Pb	209	3	0.090 ppb	9.98	0.300	
232 Th	209	3	0.117 ppb	5.79	3.000	
238 U	209	3	0.032 ppb	3.56	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1356792	3.81	1445753	93.8	60 - 120	
45 Sc	1	2040854	1.87	2299572	88.7	60 - 120	
45 Sc	2	378448	1.45	412581	91.7	60 - 120	
45 Sc	3	5411529	2.43	5808191	93.2	60 - 120	
72 Ge	1	570643	2.74	646707	88.2	60 - 120	
72 Ge	2	178074	0.60	193144	92.2	60 - 120	
72 Ge	3	1111487	1.26	1193091	93.2	60 - 120	
74 Ge	1	801693	2.05	889974	90.1	60 - 120	
74 Ge	2	256818	0.15	279622	91.8	60 - 120	
74 Ge	3	1498527	2.12	1610801	93.0	60 - 120	
115 In	1	2348019	2.09	2650814	88.6	60 - 120	
115 In	2	599519	0.54	676978	88.6	60 - 120	
115 In	3	2817751	1.51	3115738	90.4	60 - 120	
159 Tb	3	2564948	1.99	2963204	86.6	60 - 120	
209 Bi	3	2313392	1.47	2708319	85.4	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\023SMPL.D\023SMPL.D#
Date Acquired: Mar 27 2017 04:45 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-04
Misc Info:
Vial Number: 3109
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	476.650	0.953	ppb	2.38	200.00	
11 B	6	3	22,915.000	45.830	ppb	0.82	20.00	OCAL
27 Al	72	3	##########	12610.000	ppb	1.20	1000.00	OCAL
51 V	45	2	19,535.000	39.070	ppb	2.10	200.00	
52 Cr	45	2	##########	275.200	ppb	2.29	200.00	OCAL
55 Mn	72	3	##########	271.100	ppb	0.90	200.00	OCAL
56 Fe	45	1	##########	22920.000	ppb	0.92	1000.00	OCAL
59 Co	72	3	6,225.000	12.450	ppb	0.28	200.00	
60 Ni	45	2	60,000.000	120.000	ppb	0.96	500.00	
63 Cu	45	2	21,610.000	43.220	ppb	1.07	500.00	
66 Zn	72	3	##########	220.800	ppb	0.96	1000.00	
75 As	45	2	5,225.000	10.450	ppb	1.33	200.00	
78 Se	45	1	9,415.000	18.830	ppb	2.52	500.00	
98 Mo	115	3	1,760.000	3.520	ppb	1.27	200.00	
107 Ag	115	3	196.200	0.392	ppb	4.36	50.00	
111 Cd	115	3	967.500	1.935	ppb	0.79	200.00	
118 Sn	115	3	3,432.000	6.864	ppb	1.34	200.00	
121 Sb	115	3	268.650	0.537	ppb	4.36	25.00	
125 Te	115	3	47.345	0.095	ppb	89.32	200.00	
133 Cs	115	3	1,149.000	2.298	ppb	2.13	200.00	
137 Ba	115	3	25,790.000	51.580	ppb	1.05	500.00	
205 Tl	209	3	150.200	0.300	ppb	3.48	200.00	
208 Pb	209	3	3,777.000	7.554	ppb	1.50	500.00	
232 Th	209	3	4,011.000	8.022	ppb	0.51	200.00	
238 U	209	3	2,927.000	5.854	ppb	1.53	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1426605	2.04	1445753	98.7	59.5 - 120	
45 Sc	1	2078678	1.45	2299572	90.4	59.5 - 120	
45 Sc	2	383569	0.70	412581	93.0	59.5 - 120	
45 Sc	3	5775061	0.41	5808191	99.4	59.5 - 120	
72 Ge	1	560153	1.86	646707	86.6	59.5 - 120	
72 Ge	2	176723	1.20	193144	91.5	59.5 - 120	
72 Ge	3	1160818	0.71	1193091	97.3	59.5 - 120	
74 Ge	1	792099	2.29	889974	89.0	59.5 - 120	
74 Ge	2	254325	0.71	279622	91.0	59.5 - 120	
74 Ge	3	1560351	0.83	1610801	96.9	59.5 - 120	
115 In	1	2338774	1.59	2650814	88.2	59.5 - 120	
115 In	2	604791	1.19	676978	89.3	59.5 - 120	
115 In	3	2979957	1.18	3115738	95.6	59.5 - 120	
159 Tb	3	2837231	1.88	2963204	95.7	59.5 - 120	
209 Bi	3	2455618	1.05	2708319	90.7	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\024SMPL.D\024SMPL.D#
Date Acquired: Mar 27 2017 04:49 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-05
Misc Info:
Vial Number: 3110
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	483.900	0.968	ppb	3.02	200.00	
11 B	6	3	20,630.000	41.260	ppb	0.33	20.00	OCAL
27 Al	72	3	##########	11750.000	ppb	0.23	1000.00	OCAL
51 V	45	2	18,945.000	37.890	ppb	1.04	200.00	
52 Cr	45	2	##########	281.700	ppb	0.93	200.00	OCAL
55 Mn	72	3	80,550.000	161.100	ppb	0.85	200.00	
56 Fe	45	1	##########	20820.000	ppb	0.26	1000.00	OCAL
59 Co	72	3	7,545.000	15.090	ppb	0.49	200.00	
60 Ni	45	2	56,400.000	112.800	ppb	0.70	500.00	
63 Cu	45	2	18,580.000	37.160	ppb	0.88	500.00	
66 Zn	72	3	##########	361.600	ppb	0.31	1000.00	
75 As	45	2	4,590.500	9.181	ppb	3.59	200.00	
78 Se	45	1	4,899.000	9.798	ppb	0.86	500.00	
98 Mo	115	3	2,004.000	4.008	ppb	0.66	200.00	
107 Ag	115	3	47.125	0.094	ppb	2.65	50.00	
111 Cd	115	3	725.000	1.450	ppb	5.41	200.00	
118 Sn	115	3	3,537.500	7.075	ppb	1.76	200.00	
121 Sb	115	3	192.600	0.385	ppb	2.50	25.00	
125 Te	115	3	29.865	0.060	ppb	43.11	200.00	
133 Cs	115	3	1,057.500	2.115	ppb	1.20	200.00	
137 Ba	115	3	27,025.000	54.050	ppb	0.60	500.00	
205 Tl	209	3	69.150	0.138	ppb	3.75	200.00	
208 Pb	209	3	3,286.000	6.572	ppb	1.13	500.00	
232 Th	209	3	3,440.000	6.880	ppb	1.44	200.00	
238 U	209	3	2,715.000	5.430	ppb	0.79	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1496169	1.51	1445753	103.5	59.5 - 120	
45 Sc	1	2328462	1.67	2299572	101.3	59.5 - 120	
45 Sc	2	423522	2.00	412581	102.7	59.5 - 120	
45 Sc	3	6200568	0.97	5808191	106.8	59.5 - 120	
72 Ge	1	619049	1.44	646707	95.7	59.5 - 120	
72 Ge	2	194054	1.05	193144	100.5	59.5 - 120	
72 Ge	3	1224043	0.71	1193091	102.6	59.5 - 120	
74 Ge	1	871802	2.27	889974	98.0	59.5 - 120	
74 Ge	2	280516	0.40	279622	100.3	59.5 - 120	
74 Ge	3	1647847	1.74	1610801	102.3	59.5 - 120	
115 In	1	2670252	2.05	2650814	100.7	59.5 - 120	
115 In	2	690293	0.31	676978	102.0	59.5 - 120	
115 In	3	3224828	0.72	3115738	103.5	59.5 - 120	
159 Tb	3	3123404	0.43	2963204	105.4	59.5 - 120	
209 Bi	3	2658638	1.49	2708319	98.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\025SMPL.D\025SMPL.D#
Date Acquired: Mar 27 2017 04:52 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-06
Misc Info:
Vial Number: 3111
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	646.500	1.293	ppb	1.68	200.00	
11 B	6	3	28,380.000	56.760	ppb	2.36	20.00	OCAL
27 Al	72	3	##########	16420.000	ppb	2.73	1000.00	OCAL
51 V	45	2	21,815.000	43.630	ppb	1.87	200.00	
52 Cr	45	2	##########	376.800	ppb	0.57	200.00	OCAL
55 Mn	72	3	##########	363.500	ppb	1.67	200.00	OCAL
56 Fe	45	1	##########	33150.000	ppb	1.68	1000.00	OCAL
59 Co	72	3	6,540.000	13.080	ppb	0.47	200.00	
60 Ni	45	2	86,450.000	172.900	ppb	1.44	500.00	
63 Cu	45	2	29,570.000	59.140	ppb	1.72	500.00	
66 Zn	72	3	##########	403.100	ppb	0.89	1000.00	
75 As	45	2	6,270.000	12.540	ppb	0.88	200.00	
78 Se	45	1	11,950.000	23.900	ppb	2.21	500.00	
98 Mo	115	3	4,160.000	8.320	ppb	0.75	200.00	
107 Ag	115	3	206.450	0.413	ppb	5.56	50.00	
111 Cd	115	3	840.000	1.680	ppb	6.57	200.00	
118 Sn	115	3	3,670.500	7.341	ppb	0.72	200.00	
121 Sb	115	3	184.800	0.370	ppb	0.31	25.00	
125 Te	115	3	24.920	0.050	ppb	124.30	200.00	
133 Cs	115	3	1,869.000	3.738	ppb	0.30	200.00	
137 Ba	115	3	43,740.000	87.480	ppb	1.09	500.00	
205 Tl	209	3	350.650	0.701	ppb	3.15	200.00	
208 Pb	209	3	4,053.000	8.106	ppb	0.49	500.00	
232 Th	209	3	4,746.000	9.492	ppb	0.70	200.00	
238 U	209	3	3,793.500	7.587	ppb	0.36	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1372761	0.94	1445753	95.0	59.5 - 120	
45 Sc	1	2153317	0.88	2299572	93.6	59.5 - 120	
45 Sc	2	387001	0.69	412581	93.8	59.5 - 120	
45 Sc	3	5632201	1.19	5808191	97.0	59.5 - 120	
72 Ge	1	572219	0.86	646707	88.5	59.5 - 120	
72 Ge	2	175770	1.00	193144	91.0	59.5 - 120	
72 Ge	3	1125677	0.67	1193091	94.3	59.5 - 120	
74 Ge	1	807393	0.88	889974	90.7	59.5 - 120	
74 Ge	2	254263	0.73	279622	90.9	59.5 - 120	
74 Ge	3	1501041	0.70	1610801	93.2	59.5 - 120	
115 In	1	2424753	0.77	2650814	91.5	59.5 - 120	
115 In	2	619073	0.70	676978	91.4	59.5 - 120	
115 In	3	2877668	0.54	3115738	92.4	59.5 - 120	
159 Tb	3	2778951	1.05	2963204	93.8	59.5 - 120	
209 Bi	3	2337481	0.80	2708319	86.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\026SMPL.D\026SMPL.D#
Date Acquired: Mar 27 2017 04:55 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-07
Misc Info:
Vial Number: 3112
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	519.500	1.039	ppb	4.62	200.00	
11 B	6	3	22,170.000	44.340	ppb	1.81	20.00	OCAL
27 Al	72	3	##########	12690.000	ppb	2.64	1000.00	OCAL
51 V	45	2	19,390.000	38.780	ppb	0.90	200.00	
52 Cr	45	2	##########	317.100	ppb	0.71	200.00	OCAL
55 Mn	72	3	##########	233.300	ppb	2.36	200.00	OCAL
56 Fe	45	1	##########	24050.000	ppb	0.51	1000.00	OCAL
59 Co	72	3	6,210.000	12.420	ppb	2.17	200.00	
60 Ni	45	2	77,350.000	154.700	ppb	0.44	500.00	
63 Cu	45	2	26,660.000	53.320	ppb	0.37	500.00	
66 Zn	72	3	##########	291.900	ppb	1.85	1000.00	
75 As	45	2	4,541.500	9.083	ppb	1.19	200.00	
78 Se	45	1	12,545.000	25.090	ppb	0.51	500.00	
98 Mo	115	3	2,333.000	4.666	ppb	1.78	200.00	
107 Ag	115	3	275.650	0.551	ppb	2.27	50.00	
111 Cd	115	3	867.000	1.734	ppb	1.44	200.00	
118 Sn	115	3	3,618.000	7.236	ppb	1.81	200.00	
121 Sb	115	3	159.750	0.320	ppb	5.63	25.00	
125 Te	115	3	33.765	0.068	ppb	67.26	200.00	
133 Cs	115	3	1,380.500	2.761	ppb	1.22	200.00	
137 Ba	115	3	38,950.000	77.900	ppb	1.14	500.00	
205 Tl	209	3	152.500	0.305	ppb	2.38	200.00	
208 Pb	209	3	3,466.500	6.933	ppb	1.34	500.00	
232 Th	209	3	3,787.500	7.575	ppb	1.17	200.00	
238 U	209	3	3,534.500	7.069	ppb	1.02	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1379354	1.95	1445753	95.4	59.5 - 120	
45 Sc	1	2108136	2.26	2299572	91.7	59.5 - 120	
45 Sc	2	379699	1.17	412581	92.0	59.5 - 120	
45 Sc	3	5700019	1.06	5808191	98.1	59.5 - 120	
72 Ge	1	568712	1.79	646707	87.9	59.5 - 120	
72 Ge	2	176944	0.58	193144	91.6	59.5 - 120	
72 Ge	3	1138598	0.68	1193091	95.4	59.5 - 120	
74 Ge	1	809038	1.94	889974	90.9	59.5 - 120	
74 Ge	2	255401	0.13	279622	91.3	59.5 - 120	
74 Ge	3	1521298	0.28	1610801	94.4	59.5 - 120	
115 In	1	2408794	1.73	2650814	90.9	59.5 - 120	
115 In	2	613150	0.07	676978	90.6	59.5 - 120	
115 In	3	2936820	0.86	3115738	94.3	59.5 - 120	
159 Tb	3	2796645	0.96	2963204	94.4	59.5 - 120	
209 Bi	3	2385339	0.65	2708319	88.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\027SMPL.D\027SMPL.D#
Date Acquired: Mar 27 2017 04:58 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-08
Misc Info:
Vial Number: 3201
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	582.000	1.164	ppb	1.68	200.00	
11 B	6	3	20,665.000	41.330	ppb	1.56	20.00	OCAL
27 Al	72	3	##########	12600.000	ppb	1.63	1000.00	OCAL
51 V	45	2	20,390.000	40.780	ppb	1.51	200.00	
52 Cr	45	2	##########	306.100	ppb	1.54	200.00	OCAL
55 Mn	72	3	99,900.000	199.800	ppb	0.79	200.00	
56 Fe	45	1	##########	25950.000	ppb	1.48	1000.00	OCAL
59 Co	72	3	6,160.000	12.320	ppb	0.82	200.00	
60 Ni	45	2	73,500.000	147.000	ppb	0.48	500.00	
63 Cu	45	2	29,245.000	58.490	ppb	0.49	500.00	
66 Zn	72	3	##########	568.200	ppb	0.56	1000.00	
75 As	45	2	5,735.000	11.470	ppb	0.92	200.00	
78 Se	45	1	9,180.000	18.360	ppb	1.81	500.00	
98 Mo	115	3	3,272.000	6.544	ppb	1.30	200.00	
107 Ag	115	3	175.100	0.350	ppb	3.79	50.00	
111 Cd	115	3	1,596.500	3.193	ppb	1.75	200.00	
118 Sn	115	3	3,425.000	6.850	ppb	1.02	200.00	
121 Sb	115	3	198.650	0.397	ppb	2.67	25.00	
125 Te	115	3	38.965	0.078	ppb	105.84	200.00	
133 Cs	115	3	1,138.500	2.277	ppb	0.35	200.00	
137 Ba	115	3	38,720.000	77.440	ppb	0.67	500.00	
205 Tl	209	3	162.700	0.325	ppb	2.24	200.00	
208 Pb	209	3	3,859.500	7.719	ppb	0.52	500.00	
232 Th	209	3	3,685.000	7.370	ppb	0.93	200.00	
238 U	209	3	2,851.000	5.702	ppb	0.37	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1369638	0.83	1445753	94.7	59.5 - 120	
45 Sc	1	2189243	1.02	2299572	95.2	59.5 - 120	
45 Sc	2	387591	0.50	412581	93.9	59.5 - 120	
45 Sc	3	5717375	1.39	5808191	98.4	59.5 - 120	
72 Ge	1	585940	0.91	646707	90.6	59.5 - 120	
72 Ge	2	179519	0.30	193144	92.9	59.5 - 120	
72 Ge	3	1147773	0.87	1193091	96.2	59.5 - 120	
74 Ge	1	821089	0.63	889974	92.3	59.5 - 120	
74 Ge	2	257354	0.46	279622	92.0	59.5 - 120	
74 Ge	3	1540916	0.56	1610801	95.7	59.5 - 120	
115 In	1	2501295	1.06	2650814	94.4	59.5 - 120	
115 In	2	618523	0.47	676978	91.4	59.5 - 120	
115 In	3	2937624	0.87	3115738	94.3	59.5 - 120	
159 Tb	3	2770949	1.24	2963204	93.5	59.5 - 120	
209 Bi	3	2405284	0.56	2708319	88.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\028SMPL.D\028SMPL.D#
Date Acquired: Mar 27 2017 05:01 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-09
Misc Info:
Vial Number: 3202
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	704.500	1.409	ppb	2.63	200.00	
11 B	6	3	33,800.000	67.600	ppb	0.43	20.00	OCAL
27 Al	72	3	##########	17420.000	ppb	0.57	1000.00	OCAL
51 V	45	2	31,235.000	62.470	ppb	0.92	200.00	
52 Cr	45	2	##########	381.900	ppb	1.08	200.00	OCAL
55 Mn	72	3	87,000.000	174.000	ppb	0.71	200.00	
56 Fe	45	1	##########	51680.000	ppb	0.45	1000.00	OCAL
59 Co	72	3	7,885.000	15.770	ppb	0.39	200.00	
60 Ni	45	2	##########	238.300	ppb	0.17	500.00	
63 Cu	45	2	39,930.000	79.860	ppb	0.24	500.00	
66 Zn	72	3	##########	663.000	ppb	0.26	1000.00	
75 As	45	2	10,825.000	21.650	ppb	1.46	200.00	
78 Se	45	1	22,750.000	45.500	ppb	0.67	500.00	
98 Mo	115	3	8,170.000	16.340	ppb	1.83	200.00	
107 Ag	115	3	481.650	0.963	ppb	1.84	50.00	
111 Cd	115	3	1,390.000	2.780	ppb	3.51	200.00	
118 Sn	115	3	3,777.500	7.555	ppb	0.76	200.00	
121 Sb	115	3	413.550	0.827	ppb	1.65	25.00	
125 Te	115	3	43.825	0.088	ppb	30.75	200.00	
133 Cs	115	3	2,056.500	4.113	ppb	0.22	200.00	
137 Ba	115	3	50,200.000	100.400	ppb	0.27	500.00	
205 Tl	209	3	361.700	0.723	ppb	2.19	200.00	
208 Pb	209	3	6,055.000	12.110	ppb	1.15	500.00	
232 Th	209	3	5,245.000	10.490	ppb	0.73	200.00	
238 U	209	3	8,265.000	16.530	ppb	0.35	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1371842	1.89	1445753	94.9	59.5 - 120	
45 Sc	1	2152364	1.76	2299572	93.6	59.5 - 120	
45 Sc	2	380985	0.77	412581	92.3	59.5 - 120	
45 Sc	3	5616489	1.73	5808191	96.7	59.5 - 120	
72 Ge	1	571930	1.61	646707	88.4	59.5 - 120	
72 Ge	2	174603	0.94	193144	90.4	59.5 - 120	
72 Ge	3	1133093	1.20	1193091	95.0	59.5 - 120	
74 Ge	1	811728	1.35	889974	91.2	59.5 - 120	
74 Ge	2	252087	0.41	279622	90.2	59.5 - 120	
74 Ge	3	1489413	1.06	1610801	92.5	59.5 - 120	
115 In	1	2434192	1.78	2650814	91.8	59.5 - 120	
115 In	2	611612	0.73	676978	90.3	59.5 - 120	
115 In	3	2901683	1.30	3115738	93.1	59.5 - 120	
159 Tb	3	2758303	1.52	2963204	93.1	59.5 - 120	
209 Bi	3	2385535	1.02	2708319	88.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\029SMPL.D\029SMPL.D#
Date Acquired: Mar 27 2017 05:04 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-10
Misc Info:
Vial Number: 3203
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	592.500	1.185	ppb	3.15	200.00	
11 B	6	3	22,710.000	45.420	ppb	1.16	20.00	OCAL
27 Al	72	3	##########	14170.000	ppb	0.57	1000.00	OCAL
51 V	45	2	27,045.000	54.090	ppb	1.30	200.00	
52 Cr	45	2	##########	349.300	ppb	0.90	200.00	OCAL
55 Mn	72	3	##########	416.800	ppb	1.23	200.00	OCAL
56 Fe	45	1	##########	30040.000	ppb	0.47	1000.00	OCAL
59 Co	72	3	6,510.000	13.020	ppb	1.00	200.00	
60 Ni	45	2	##########	202.000	ppb	1.22	500.00	
63 Cu	45	2	33,775.000	67.550	ppb	1.44	500.00	
66 Zn	72	3	##########	610.300	ppb	1.42	1000.00	
75 As	45	2	8,425.000	16.850	ppb	1.90	200.00	
78 Se	45	1	7,785.000	15.570	ppb	1.77	500.00	
98 Mo	115	3	5,255.000	10.510	ppb	1.54	200.00	
107 Ag	115	3	122.300	0.245	ppb	4.21	50.00	
111 Cd	115	3	1,113.500	2.227	ppb	5.07	200.00	
118 Sn	115	3	3,544.500	7.089	ppb	0.94	200.00	
121 Sb	115	3	344.250	0.689	ppb	2.42	25.00	
125 Te	115	3	36.750	0.074	ppb	19.93	200.00	
133 Cs	115	3	1,368.500	2.737	ppb	0.17	200.00	
137 Ba	115	3	24,535.000	49.070	ppb	0.24	500.00	
205 Tl	209	3	259.450	0.519	ppb	3.09	200.00	
208 Pb	209	3	4,624.000	9.248	ppb	0.42	500.00	
232 Th	209	3	4,424.500	8.849	ppb	0.43	200.00	
238 U	209	3	5,485.000	10.970	ppb	0.34	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1395519	1.41	1445753	96.5	59.5 - 120	
45 Sc	1	2180072	2.05	2299572	94.8	59.5 - 120	
45 Sc	2	389931	2.24	412581	94.5	59.5 - 120	
45 Sc	3	5827576	1.56	5808191	100.3	59.5 - 120	
72 Ge	1	573037	2.42	646707	88.6	59.5 - 120	
72 Ge	2	176490	1.85	193144	91.4	59.5 - 120	
72 Ge	3	1146057	1.79	1193091	96.1	59.5 - 120	
74 Ge	1	810339	2.23	889974	91.1	59.5 - 120	
74 Ge	2	255485	1.27	279622	91.4	59.5 - 120	
74 Ge	3	1522164	1.40	1610801	94.5	59.5 - 120	
115 In	1	2432571	2.28	2650814	91.8	59.5 - 120	
115 In	2	614709	0.82	676978	90.8	59.5 - 120	
115 In	3	2918746	0.68	3115738	93.7	59.5 - 120	
159 Tb	3	2775552	0.72	2963204	93.7	59.5 - 120	
209 Bi	3	2395502	0.38	2708319	88.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\030SMPL.D\030SMPL.D#
Date Acquired: Mar 27 2017 05:07 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-10SDL
Misc Info:
Vial Number: 3204
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	119.050	0.238	ppb	6.43	200.00	
11 B	6	3	4,562.000	9.124	ppb	2.26	20.00	
27 Al	72	3	##########	2763.000	ppb	0.66	1000.00	OCAL
51 V	45	2	5,195.000	10.390	ppb	0.82	200.00	
52 Cr	45	2	34,600.000	69.200	ppb	1.34	200.00	
55 Mn	72	3	41,425.000	82.850	ppb	0.30	200.00	
56 Fe	45	1	##########	6194.000	ppb	1.32	1000.00	OCAL
59 Co	72	3	1,286.000	2.572	ppb	1.52	200.00	
60 Ni	45	2	20,050.000	40.100	ppb	1.40	500.00	
63 Cu	45	2	6,515.000	13.030	ppb	1.65	500.00	
66 Zn	72	3	58,850.000	117.700	ppb	0.62	1000.00	
75 As	45	2	1,610.500	3.221	ppb	3.49	200.00	
78 Se	45	1	1,540.000	3.080	ppb	1.39	500.00	
98 Mo	115	3	1,002.500	2.005	ppb	0.53	200.00	
107 Ag	115	3	21.100	0.042	ppb	10.89	50.00	
111 Cd	115	3	222.150	0.444	ppb	3.80	200.00	
118 Sn	115	3	-292.600	-0.585	ppb	1.79	200.00	
121 Sb	115	3	45.665	0.091	ppb	8.36	25.00	
125 Te	115	3	24.640	0.049	ppb	69.05	200.00	
133 Cs	115	3	257.750	0.516	ppb	0.98	200.00	
137 Ba	115	3	4,510.000	9.020	ppb	1.88	500.00	
205 Tl	209	3	49.570	0.099	ppb	9.37	200.00	
208 Pb	209	3	880.500	1.761	ppb	1.61	500.00	
232 Th	209	3	833.500	1.667	ppb	0.82	200.00	
238 U	209	3	1,034.500	2.069	ppb	1.29	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1365607	2.25	1445753	94.5	59.5 - 120	
45 Sc	1	2126728	2.42	2299572	92.5	59.5 - 120	
45 Sc	2	385581	2.65	412581	93.5	59.5 - 120	
45 Sc	3	5639863	0.99	5808191	97.1	59.5 - 120	
72 Ge	1	589514	1.57	646707	91.2	59.5 - 120	
72 Ge	2	180944	1.65	193144	93.7	59.5 - 120	
72 Ge	3	1143399	0.28	1193091	95.8	59.5 - 120	
74 Ge	1	831394	0.83	889974	93.4	59.5 - 120	
74 Ge	2	262532	0.80	279622	93.9	59.5 - 120	
74 Ge	3	1532781	0.13	1610801	95.2	59.5 - 120	
115 In	1	2451701	1.98	2650814	92.5	59.5 - 120	
115 In	2	620630	0.92	676978	91.7	59.5 - 120	
115 In	3	2939919	0.73	3115738	94.4	59.5 - 120	
159 Tb	3	2688988	1.14	2963204	90.7	59.5 - 120	
209 Bi	3	2445938	1.15	2708319	90.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\031SMPL.D\031SMPL.D#
Date Acquired: Mar 27 2017 05:11 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-11
Misc Info:
Vial Number: 3205
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 500.00
Autodil Factor: Undiluted
Final Dil Factor: 500.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	106.100	0.212	ppb	6.13	200.00	
11 B	6	3	4,752.000	9.504	ppb	1.38	20.00	
27 Al	72	3	##########	2174.000	ppb	1.50	1000.00	OCAL
51 V	45	2	9,325.000	18.650	ppb	1.17	200.00	
52 Cr	45	2	40,785.000	81.570	ppb	1.10	200.00	
55 Mn	72	3	28,675.000	57.350	ppb	0.51	200.00	
56 Fe	45	1	##########	7665.000	ppb	1.38	1000.00	OCAL
59 Co	72	3	13,535.000	27.070	ppb	0.22	200.00	
60 Ni	45	2	31,195.000	62.390	ppb	1.81	500.00	
63 Cu	45	2	7,305.000	14.610	ppb	2.11	500.00	
66 Zn	72	3	94,100.000	188.200	ppb	0.36	1000.00	
75 As	45	2	1,981.000	3.962	ppb	0.12	200.00	
78 Se	45	1	1,900.000	3.800	ppb	1.39	500.00	
98 Mo	115	3	1,463.000	2.926	ppb	1.33	200.00	
107 Ag	115	3	57.850	0.116	ppb	3.82	50.00	
111 Cd	115	3	518.500	1.037	ppb	4.21	200.00	
118 Sn	115	3	3,316.500	6.633	ppb	2.10	200.00	
121 Sb	115	3	149.400	0.299	ppb	3.70	25.00	
125 Te	115	3	3.876	0.008	ppb	472.65	200.00	
133 Cs	115	3	219.800	0.440	ppb	2.92	200.00	
137 Ba	115	3	74,050.000	148.100	ppb	1.20	500.00	
205 Tl	209	3	61.050	0.122	ppb	3.87	200.00	
208 Pb	209	3	1,078.500	2.157	ppb	0.85	500.00	
232 Th	209	3	1,012.500	2.025	ppb	0.56	200.00	
238 U	209	3	3,114.000	6.228	ppb	0.61	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1468715	1.63	1445753	101.6	59.5 - 120	
45 Sc	1	2175514	1.04	2299572	94.6	59.5 - 120	
45 Sc	2	399641	2.12	412581	96.9	59.5 - 120	
45 Sc	3	5866909	0.86	5808191	101.0	59.5 - 120	
72 Ge	1	597240	2.04	646707	92.4	59.5 - 120	
72 Ge	2	184740	1.97	193144	95.6	59.5 - 120	
72 Ge	3	1192172	0.50	1193091	99.9	59.5 - 120	
74 Ge	1	828077	1.68	889974	93.0	59.5 - 120	
74 Ge	2	271030	1.13	279622	96.9	59.5 - 120	
74 Ge	3	1596632	0.92	1610801	99.1	59.5 - 120	
115 In	1	2545881	1.39	2650814	96.0	59.5 - 120	
115 In	2	659009	1.34	676978	97.3	59.5 - 120	
115 In	3	3115587	0.63	3115738	100.0	59.5 - 120	
159 Tb	3	2859003	0.83	2963204	96.5	59.5 - 120	
209 Bi	3	2514404	0.85	2708319	92.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\032SMPL.D\032SMPL.D#
Date Acquired: Mar 27 2017 05:14 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-12
Misc Info:
Vial Number: 3206
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,444.805	2.861	ppb	2.34	200.00	
11 B	6	3	36,592.300	72.460	ppb	0.47	20.00	OCAL
27 Al	72	3	##########	33750.000	ppb	0.42	1000.00	OCAL
51 V	45	2	22,235.150	44.030	ppb	0.71	200.00	
52 Cr	45	2	17,346.750	34.350	ppb	0.30	200.00	
55 Mn	72	3	##########	5750.000	ppb	0.86	200.00	OCAL
56 Fe	45	1	##########	69200.000	ppb	0.66	1000.00	OCAL
59 Co	72	3	18,568.850	36.770	ppb	0.96	200.00	
60 Ni	45	2	37,168.000	73.600	ppb	0.79	500.00	
63 Cu	45	2	49,838.450	98.690	ppb	0.74	500.00	
66 Zn	72	3	##########	494.800	ppb	0.82	1000.00	
75 As	45	2	12,074.550	23.910	ppb	1.12	200.00	
78 Se	45	1	244.471	0.484	ppb	6.38	500.00	
98 Mo	115	3	447.228	0.886	ppb	4.35	200.00	
107 Ag	115	3	177.407	0.351	ppb	3.73	50.00	
111 Cd	115	3	781.235	1.547	ppb	2.04	200.00	
118 Sn	115	3	4,280.380	8.476	ppb	1.12	200.00	
121 Sb	115	3	372.387	0.737	ppb	1.75	25.00	
125 Te	115	3	51.207	0.101	ppb	18.08	200.00	
133 Cs	115	3	4,960.615	9.823	ppb	0.82	200.00	
137 Ba	115	3	##########	336.700	ppb	0.93	500.00	
205 Tl	209	3	328.856	0.651	ppb	2.30	200.00	
208 Pb	209	3	27,628.550	54.710	ppb	0.04	500.00	
232 Th	209	3	8,029.500	15.900	ppb	0.83	200.00	
238 U	209	3	817.090	1.618	ppb	1.44	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1416264	1.60	1445753	98.0	59.5 - 120	
45 Sc	1	2324102	1.59	2299572	101.1	59.5 - 120	
45 Sc	2	415258	0.98	412581	100.6	59.5 - 120	
45 Sc	3	6039623	0.42	5808191	104.0	59.5 - 120	
72 Ge	1	576907	1.33	646707	89.2	59.5 - 120	
72 Ge	2	176982	0.05	193144	91.6	59.5 - 120	
72 Ge	3	1161681	1.38	1193091	97.4	59.5 - 120	
74 Ge	1	824484	1.33	889974	92.6	59.5 - 120	
74 Ge	2	257881	0.54	279622	92.2	59.5 - 120	
74 Ge	3	1514091	0.91	1610801	94.0	59.5 - 120	
115 In	1	2506828	1.57	2650814	94.6	59.5 - 120	
115 In	2	634517	0.10	676978	93.7	59.5 - 120	
115 In	3	2960613	0.98	3115738	95.0	59.5 - 120	
159 Tb	3	2848840	1.01	2963204	96.1	59.5 - 120	
209 Bi	3	2420843	0.64	2708319	89.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\033_CCV.D\033_CCV.D#
Date Acquired: Mar 27 2017 05:17 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	96.950	1.10	100.00	97.0	89 - 110	
11 B	6	3	10.730	0.31	10.00	107.3	89 - 110	
27 Al	72	3	503.400	0.61	500.00	100.7	89 - 110	
51 V	45	2	102.500	0.54	100.00	102.5	89 - 110	
52 Cr	45	2	101.500	0.42	100.00	101.5	89 - 110	
55 Mn	72	3	103.200	1.16	100.00	103.2	89 - 110	
56 Fe	45	1	543.100	1.38	500.00	108.6	89 - 110	
59 Co	72	3	102.800	1.24	100.00	102.8	89 - 110	
60 Ni	45	2	260.700	0.51	250.00	104.3	89 - 110	
63 Cu	45	2	261.300	0.71	250.00	104.5	89 - 110	
66 Zn	72	3	514.500	1.17	500.00	102.9	89 - 110	
75 As	45	2	103.300	0.96	100.00	103.3	89 - 110	
78 Se	45	1	258.600	0.65	250.00	103.4	89 - 110	
98 Mo	115	3	103.300	1.65	100.00	103.3	89 - 110	
107 Ag	115	3	24.930	1.43	25.00	99.7	89 - 110	
111 Cd	115	3	100.700	0.29	100.00	100.7	89 - 110	
118 Sn	115	3	98.660	0.31	100.00	98.7	89 - 110	
121 Sb	115	3	12.950	1.68	12.50	103.6	89 - 110	
125 Te	115	3	99.530	0.53	100.00	99.5	89 - 110	
133 Cs	115	3	101.100	1.60	100.00	101.1	89 - 110	
137 Ba	115	3	262.300	0.51	250.00	104.9	89 - 110	
205 Tl	209	3	103.500	0.76	100.00	103.5	89 - 110	
208 Pb	209	3	256.900	0.14	250.00	102.8	89 - 110	
232 Th	209	3	104.300	0.72	100.00	104.3	89 - 110	
238 U	209	3	103.300	0.88	100.00	103.3	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1370852	2.64	1445753	94.8	60 - 120	
45 Sc	1	2138932	1.93	2299572	93.0	60 - 120	
45 Sc	2	382919	2.01	412581	92.8	60 - 120	
45 Sc	3	5582668	0.41	5808191	96.1	60 - 120	
72 Ge	1	595160	1.45	646707	92.0	60 - 120	
72 Ge	2	181279	1.32	193144	93.9	60 - 120	
72 Ge	3	1147050	0.96	1193091	96.1	60 - 120	
74 Ge	1	844843	1.68	889974	94.9	60 - 120	
74 Ge	2	263011	1.10	279622	94.1	60 - 120	
74 Ge	3	1562748	1.59	1610801	97.0	60 - 120	
115 In	1	2551531	1.47	2650814	96.3	60 - 120	
115 In	2	640828	0.93	676978	94.7	60 - 120	
115 In	3	3009759	1.20	3115738	96.6	60 - 120	
159 Tb	3	2831680	1.13	2963204	95.6	60 - 120	
209 Bi	3	2523836	0.16	2708319	93.2	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\034_CCB.D\034_CCB.D#
Date Acquired: Mar 27 2017 05:20 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1203
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.052 ppb	11.42	0.150	
11 B	6	3	0.305 ppb	17.80	1.500	
27 Al	72	3	2.142 ppb	10.26	3.000	
51 V	45	2	-0.409 ppb	6.52	0.600	
52 Cr	45	2	0.044 ppb	2.25	1.500	
55 Mn	72	3	0.177 ppb	19.38	1.500	
56 Fe	45	1	8.663 ppb	7.95	12.000	
59 Co	72	3	0.031 ppb	16.77	0.150	
60 Ni	45	2	0.107 ppb	20.20	1.800	
63 Cu	45	2	0.187 ppb	26.48	1.500	
66 Zn	72	3	0.314 ppb	25.33	6.000	
75 As	45	2	-0.051 ppb	37.56	0.600	
78 Se	45	1	0.186 ppb	14.82	0.300	
98 Mo	115	3	0.047 ppb	12.00	1.500	
107 Ag	115	3	0.009 ppb	6.67	0.150	
111 Cd	115	3	0.033 ppb	22.54	0.300	
118 Sn	115	3	0.160 ppb	31.84	0.300	
121 Sb	115	3	0.275 ppb	5.48	1.200	
125 Te	115	3	0.099 ppb	27.88	3.000	
133 Cs	115	3	0.046 ppb	13.02	0.600	
137 Ba	115	3	0.107 ppb	15.66	1.500	
205 Tl	209	3	0.053 ppb	10.70	0.300	
208 Pb	209	3	0.107 ppb	11.26	0.300	
232 Th	209	3	0.103 ppb	3.07	3.000	
238 U	209	3	0.033 ppb	6.89	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1364523	2.22	1445753	94.4	60 - 120	
45 Sc	1	2079651	2.85	2299572	90.4	60 - 120	
45 Sc	2	387138	0.85	412581	93.8	60 - 120	
45 Sc	3	5601533	1.79	5808191	96.4	60 - 120	
72 Ge	1	591499	2.68	646707	91.5	60 - 120	
72 Ge	2	181501	0.75	193144	94.0	60 - 120	
72 Ge	3	1141328	2.09	1193091	95.7	60 - 120	
74 Ge	1	827951	2.25	889974	93.0	60 - 120	
74 Ge	2	268551	0.36	279622	96.0	60 - 120	
74 Ge	3	1547024	1.92	1610801	96.0	60 - 120	
115 In	1	2432259	2.24	2650814	91.8	60 - 120	
115 In	2	632324	1.01	676978	93.4	60 - 120	
115 In	3	2958068	0.57	3115738	94.9	60 - 120	
159 Tb	3	2751483	0.97	2963204	92.9	60 - 120	
209 Bi	3	2466769	0.79	2708319	91.1	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\035SMPL.D\035SMPL.D#
Date Acquired: Mar 27 2017 05:23 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-13
Misc Info:
Vial Number: 3207
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,040.300	2.060	ppb	1.79	200.00	
11 B	6	3	20,952.450	41.490	ppb	1.86	20.00	OCAL
27 Al	72	3	##########	40800.000	ppb	1.39	1000.00	OCAL
51 V	45	2	30,421.200	60.240	ppb	0.89	200.00	
52 Cr	45	2	23,856.200	47.240	ppb	1.26	200.00	
55 Mn	72	3	##########	5418.000	ppb	0.24	200.00	OCAL
56 Fe	45	1	##########	49590.000	ppb	0.90	1000.00	OCAL
59 Co	72	3	12,387.650	24.530	ppb	0.54	200.00	
60 Ni	45	2	25,593.400	50.680	ppb	0.90	500.00	
63 Cu	45	2	26,381.200	52.240	ppb	0.11	500.00	
66 Zn	72	3	74,538.000	147.600	ppb	0.98	1000.00	
75 As	45	2	6,120.600	12.120	ppb	2.64	200.00	
78 Se	45	1	318.100	0.630	ppb	5.51	500.00	
98 Mo	115	3	452.985	0.897	ppb	0.59	200.00	
107 Ag	115	3	69.135	0.137	ppb	1.63	50.00	
111 Cd	115	3	747.905	1.481	ppb	4.25	200.00	
118 Sn	115	3	4,081.410	8.082	ppb	1.11	200.00	
121 Sb	115	3	250.682	0.496	ppb	4.17	25.00	
125 Te	115	3	75.649	0.150	ppb	23.29	200.00	
133 Cs	115	3	3,227.960	6.392	ppb	0.41	200.00	
137 Ba	115	3	##########	297.100	ppb	0.59	500.00	
205 Tl	209	3	169.175	0.335	ppb	2.36	200.00	
208 Pb	209	3	14,013.750	27.750	ppb	1.49	500.00	
232 Th	209	3	5,640.850	11.170	ppb	0.83	200.00	
238 U	209	3	686.295	1.359	ppb	0.85	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1394772	1.93	1445753	96.5	59.5 - 120	
45 Sc	1	2221513	1.85	2299572	96.6	59.5 - 120	
45 Sc	2	395155	1.08	412581	95.8	59.5 - 120	
45 Sc	3	5810394	0.57	5808191	100.0	59.5 - 120	
72 Ge	1	553130	0.55	646707	85.5	59.5 - 120	
72 Ge	2	170238	1.36	193144	88.1	59.5 - 120	
72 Ge	3	1109977	1.11	1193091	93.0	59.5 - 120	
74 Ge	1	790797	0.67	889974	88.9	59.5 - 120	
74 Ge	2	244480	1.49	279622	87.4	59.5 - 120	
74 Ge	3	1469164	0.68	1610801	91.2	59.5 - 120	
115 In	1	2364656	1.65	2650814	89.2	59.5 - 120	
115 In	2	594131	1.26	676978	87.8	59.5 - 120	
115 In	3	2802736	0.93	3115738	90.0	59.5 - 120	
159 Tb	3	2736307	1.32	2963204	92.3	59.5 - 120	
209 Bi	3	2297668	0.91	2708319	84.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\036SMPL.D\036SMPL.D#
Date Acquired: Mar 27 2017 05:26 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-14
Misc Info:
Vial Number: 3208
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 510.00
Autodil Factor: Undiluted
Final Dil Factor: 510.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	1,607.520	3.152	ppb	1.22	200.00	
11 B	6	3	22,832.700	44.770	ppb	1.62	20.00	OCAL
27 Al	72	3	##########	63150.000	ppb	0.48	1000.00	OCAL
51 V	45	2	39,652.500	77.750	ppb	1.62	200.00	
52 Cr	45	2	33,190.800	65.080	ppb	1.66	200.00	
55 Mn	72	3	##########	11520.000	ppb	1.02	200.00	OCAL
56 Fe	45	1	##########	79130.000	ppb	0.47	1000.00	OCAL
59 Co	72	3	21,307.800	41.780	ppb	0.45	200.00	
60 Ni	45	2	38,311.200	75.120	ppb	1.45	500.00	
63 Cu	45	2	35,067.600	68.760	ppb	1.94	500.00	
66 Zn	72	3	84,252.000	165.200	ppb	0.49	1000.00	
75 As	45	2	8,471.100	16.610	ppb	3.00	200.00	
78 Se	45	1	235.773	0.462	ppb	3.71	500.00	
98 Mo	115	3	381.735	0.749	ppb	6.39	200.00	
107 Ag	115	3	62.475	0.123	ppb	6.65	50.00	
111 Cd	115	3	550.290	1.079	ppb	3.51	200.00	
118 Sn	115	3	4,086.630	8.013	ppb	2.20	200.00	
121 Sb	115	3	264.486	0.519	ppb	2.90	25.00	
125 Te	115	3	66.300	0.130	ppb	42.52	200.00	
133 Cs	115	3	5,258.100	10.310	ppb	2.44	200.00	
137 Ba	115	3	##########	976.400	ppb	1.97	500.00	OCAL
205 Tl	209	3	238.476	0.468	ppb	3.83	200.00	
208 Pb	209	3	33,252.000	65.200	ppb	0.38	500.00	
232 Th	209	3	7,548.000	14.800	ppb	0.52	200.00	
238 U	209	3	642.090	1.259	ppb	0.99	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1423075	0.73	1445753	98.4	59.5 - 120	
45 Sc	1	2339895	1.21	2299572	101.8	59.5 - 120	
45 Sc	2	414857	3.10	412581	100.6	59.5 - 120	
45 Sc	3	6126278	0.67	5808191	105.5	59.5 - 120	
72 Ge	1	569497	0.66	646707	88.1	59.5 - 120	
72 Ge	2	173672	1.84	193144	89.9	59.5 - 120	
72 Ge	3	1148865	0.72	1193091	96.3	59.5 - 120	
74 Ge	1	807801	1.52	889974	90.8	59.5 - 120	
74 Ge	2	249972	1.36	279622	89.4	59.5 - 120	
74 Ge	3	1477776	1.13	1610801	91.7	59.5 - 120	
115 In	1	2332426	0.81	2650814	88.0	59.5 - 120	
115 In	2	583418	1.48	676978	86.2	59.5 - 120	
115 In	3	2757076	1.38	3115738	88.5	59.5 - 120	
159 Tb	3	2656395	0.84	2963204	89.6	59.5 - 120	
209 Bi	3	2245466	0.52	2708319	82.9	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\037SMPL.D\037SMPL.D#
Date Acquired: Mar 27 2017 05:30 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36109-15
Misc Info:
Vial Number: 3209
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Mar 27 2017 03:56 pm
Sample Type: Sample
Dilution Factor: 505.00
Autodil Factor: Undiluted
Final Dil Factor: 505.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	915.565	1.813	ppb	2.29	200.00	
11 B	6	3	19,477.850	38.570	ppb	0.84	20.00	OCAL
27 Al	72	3	##########	36260.000	ppb	1.55	1000.00	OCAL
51 V	45	2	27,764.900	54.980	ppb	1.23	200.00	
52 Cr	45	2	21,684.700	42.940	ppb	1.33	200.00	
55 Mn	72	3	##########	4702.000	ppb	1.31	200.00	OCAL
56 Fe	45	1	##########	46360.000	ppb	1.98	1000.00	OCAL
59 Co	72	3	11,059.500	21.900	ppb	0.39	200.00	
60 Ni	45	2	23,729.950	46.990	ppb	1.94	500.00	
63 Cu	45	2	24,563.200	48.640	ppb	1.52	500.00	
66 Zn	72	3	66,407.500	131.500	ppb	0.43	1000.00	
75 As	45	2	5,575.200	11.040	ppb	4.08	200.00	
78 Se	45	1	250.632	0.496	ppb	8.46	500.00	
98 Mo	115	3	403.243	0.799	ppb	1.81	200.00	
107 Ag	115	3	67.266	0.133	ppb	5.12	50.00	
111 Cd	115	3	676.195	1.339	ppb	3.15	200.00	
118 Sn	115	3	3,427.435	6.787	ppb	1.29	200.00	
121 Sb	115	3	161.398	0.320	ppb	2.84	25.00	
125 Te	115	3	73.427	0.145	ppb	12.38	200.00	
133 Cs	115	3	2,916.880	5.776	ppb	1.16	200.00	
137 Ba	115	3	##########	247.900	ppb	1.20	500.00	
205 Tl	209	3	151.248	0.300	ppb	2.27	200.00	
208 Pb	209	3	13,326.950	26.390	ppb	0.11	500.00	
232 Th	209	3	5,090.400	10.080	ppb	1.12	200.00	
238 U	209	3	625.190	1.238	ppb	2.99	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1402315	3.23	1445753	97.0	59.5 - 120	
45 Sc	1	2213744	0.49	2299572	96.3	59.5 - 120	
45 Sc	2	390028	2.30	412581	94.5	59.5 - 120	
45 Sc	3	5929262	1.98	5808191	102.1	59.5 - 120	
72 Ge	1	557196	0.38	646707	86.2	59.5 - 120	
72 Ge	2	170244	2.20	193144	88.1	59.5 - 120	
72 Ge	3	1137070	1.03	1193091	95.3	59.5 - 120	
74 Ge	1	786692	0.35	889974	88.4	59.5 - 120	
74 Ge	2	245527	1.65	279622	87.8	59.5 - 120	
74 Ge	3	1498803	2.38	1610801	93.0	59.5 - 120	
115 In	1	2388488	0.35	2650814	90.1	59.5 - 120	
115 In	2	594607	2.53	676978	87.8	59.5 - 120	
115 In	3	2916796	2.39	3115738	93.6	59.5 - 120	
159 Tb	3	2819767	2.19	2963204	95.2	59.5 - 120	
209 Bi	3	2380209	1.74	2708319	87.9	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\038_CCV.D\038_CCV.D#
Date Acquired: Mar 27 2017 05:33 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	96.850	1.37	100.00	96.9	89 - 110	
11 B	6	3	10.830	1.37	10.00	108.3	89 - 110	
27 Al	72	3	509.000	0.37	500.00	101.8	89 - 110	
51 V	45	2	101.400	1.12	100.00	101.4	89 - 110	
52 Cr	45	2	100.100	0.96	100.00	100.1	89 - 110	
55 Mn	72	3	102.600	0.15	100.00	102.6	89 - 110	
56 Fe	45	1	539.700	0.27	500.00	107.9	89 - 110	
59 Co	72	3	102.900	0.56	100.00	102.9	89 - 110	
60 Ni	45	2	257.400	0.79	250.00	103.0	89 - 110	
63 Cu	45	2	258.000	1.31	250.00	103.2	89 - 110	
66 Zn	72	3	508.800	1.20	500.00	101.8	89 - 110	
75 As	45	2	100.100	0.78	100.00	100.1	89 - 110	
78 Se	45	1	257.800	0.23	250.00	103.1	89 - 110	
98 Mo	115	3	102.200	0.60	100.00	102.2	89 - 110	
107 Ag	115	3	24.850	1.59	25.00	99.4	89 - 110	
111 Cd	115	3	101.000	1.54	100.00	101.0	89 - 110	
118 Sn	115	3	99.180	0.91	100.00	99.2	89 - 110	
121 Sb	115	3	12.870	1.07	12.50	103.0	89 - 110	
125 Te	115	3	97.280	1.07	100.00	97.3	89 - 110	
133 Cs	115	3	101.300	1.14	100.00	101.3	89 - 110	
137 Ba	115	3	263.900	1.16	250.00	105.6	89 - 110	
205 Tl	209	3	104.200	1.12	100.00	104.2	89 - 110	
208 Pb	209	3	255.900	0.81	250.00	102.4	89 - 110	
232 Th	209	3	102.900	0.74	100.00	102.9	89 - 110	
238 U	209	3	103.000	0.63	100.00	103.0	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1431286	2.76	1445753	99.0	60 - 120	
45 Sc	1	2239357	1.57	2299572	97.4	60 - 120	
45 Sc	2	410552	2.29	412581	99.5	60 - 120	
45 Sc	3	5964213	1.13	5808191	102.7	60 - 120	
72 Ge	1	622394	1.40	646707	96.2	60 - 120	
72 Ge	2	194294	2.12	193144	100.6	60 - 120	
72 Ge	3	1218903	0.63	1193091	102.2	60 - 120	
74 Ge	1	879470	1.11	889974	98.8	60 - 120	
74 Ge	2	282292	1.47	279622	101.0	60 - 120	
74 Ge	3	1656017	1.07	1610801	102.8	60 - 120	
115 In	1	2666208	1.57	2650814	100.6	60 - 120	
115 In	2	691738	1.37	676978	102.2	60 - 120	
115 In	3	3225297	1.24	3115738	103.5	60 - 120	
159 Tb	3	3046816	0.29	2963204	102.8	60 - 120	
209 Bi	3	2744395	0.89	2708319	101.3	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg420112.b\039_CCB.D\039_CCB.D#
Date Acquired: Mar 27 2017 05:36 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1203
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: C:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Mar 27 2017 03:56 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.054 ppb	31.96	0.150	
11 B	6	3	0.321 ppb	18.24	1.500	
27 Al	72	3	3.310 ppb	1.56	3.000	Fail
51 V	45	2	-0.217 ppb	18.83	0.600	
52 Cr	45	2	0.035 ppb	22.20	1.500	
55 Mn	72	3	0.312 ppb	8.52	1.500	
56 Fe	45	1	7.615 ppb	6.79	12.000	
59 Co	72	3	0.039 ppb	18.74	0.150	
60 Ni	45	2	0.108 ppb	7.87	1.800	
63 Cu	45	2	0.195 ppb	3.82	1.500	
66 Zn	72	3	0.259 ppb	34.54	6.000	
75 As	45	2	0.053 ppb	80.47	0.600	
78 Se	45	1	0.184 ppb	3.44	0.300	
98 Mo	115	3	0.053 ppb	9.21	1.500	
107 Ag	115	3	0.012 ppb	12.37	0.150	
111 Cd	115	3	0.040 ppb	36.45	0.300	
118 Sn	115	3	0.140 ppb	30.40	0.300	
121 Sb	115	3	0.268 ppb	10.24	1.200	
125 Te	115	3	0.091 ppb	55.22	3.000	
133 Cs	115	3	0.055 ppb	8.65	0.600	
137 Ba	115	3	0.103 ppb	12.06	1.500	
205 Tl	209	3	0.055 ppb	12.21	0.300	
208 Pb	209	3	0.117 ppb	7.75	0.300	
232 Th	209	3	0.106 ppb	5.08	3.000	
238 U	209	3	0.039 ppb	8.95	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	1371080	0.96	1445753	94.8	60 - 120	
45 Sc	1	2256405	1.71	2299572	98.1	60 - 120	
45 Sc	2	401314	0.96	412581	97.3	60 - 120	
45 Sc	3	5626335	0.80	5808191	96.9	60 - 120	
72 Ge	1	627938	1.63	646707	97.1	60 - 120	
72 Ge	2	189032	0.81	193144	97.9	60 - 120	
72 Ge	3	1158297	1.72	1193091	97.1	60 - 120	
74 Ge	1	873984	1.36	889974	98.2	60 - 120	
74 Ge	2	276591	0.26	279622	98.9	60 - 120	
74 Ge	3	1562635	1.34	1610801	97.0	60 - 120	
115 In	1	2612918	1.98	2650814	98.6	60 - 120	
115 In	2	659647	0.15	676978	97.4	60 - 120	
115 In	3	3001287	1.08	3115738	96.3	60 - 120	
159 Tb	3	2796600	0.56	2963204	94.4	60 - 120	
209 Bi	3	2491731	1.28	2708319	92.0	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg420112.b\003CALB.D\003CALB.D#

1 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG419750

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 03/21/2017 10:45
Start Date/Time: 03/21/2017 10:45
End Date/Time: 03/22/2017 10:45

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
1	WG419750PBS	NONE	RPLL		03/21/17 10:45	0	7.5	5	5	50			1.299	7.898	1.299	.00	100	
2	WG419750LCSS	PCN52822	RPLL		03/21/17 12:00	0.5	7.5	5	5	50		100					100	
3	WG419750LCSSD	PCN52822	RPLL		03/21/17 13:16	0.5	7.5	5	5	50		100					100	
4	L36109-01	RC-40V1(22-37)	RPLL		03/21/17 14:32	0.5	7.5	5	5	50			1.302	7.102	7.066	99.38	101	
5	L36109-01MS	MS170209-3	RPLL		03/21/17 15:48	0.5	7.5	5	5	50	0.25	99.38	1.29	7.175	7.137	99.35	101	AD QOC
6	L36109-01MSD	MS170209-3	RPLL		03/21/17 17:03	0.5	7.5	5	5	50	0.25	99.38					101	
7	L36109-02	RC-03V1(20-30)	RPLL		03/21/17 18:19	0.5	7.5	5	5	50			1.295	7.183	7.162	99.64	100	
8	L36109-03	RC-07V1(40-55)	RPLL		03/21/17 19:35	0.5	7.5	5	5	50			1.293	7.113	7.089	99.59	100	
9	L36109-04	RC-11V1(30-40)	RPLL		03/21/17 20:51	0.5	7.5	5	5	50			1.295	7.002	6.989	99.77	100	
10	L36109-05	RC-19V1(42-52)	RPLL		03/21/17 22:07	0.5	7.5	5	5	50			1.291	7.072	7.052	99.65	100	
11	L36109-06	RC-21V1(27-37)	RPLL		03/21/17 23:22	0.5	7.5	5	5	50			1.293	7.001	6.986	99.74	100	
12	L36109-07	RC-21V1(107-117)	RPLL		03/22/17 0:38	0.5	7.5	5	5	50			1.294	7.199	7.182	99.71	100	
13	L36109-08	RC-24V1(27-42)	RPLL		03/22/17 1:54	0.5	7.5	5	5	50			1.285	8.116	8.091	99.63	100	
14	L36109-09	RC-24V1(102-112)	RPLL		03/22/17 3:10	0.5	7.5	5	5	50			1.291	7.279	7.267	99.80	100	
15	L36109-10	RC-28V1(37-48)	RPLL		03/22/17 4:25	0.5	7.5	5	5	50			1.29	7.326	7.302	99.60	100	
16	L36109-11	RC-38V1(52-62)	RPLL		03/22/17 5:41	0.5	7.5	5	5	50			1.29	7.849	7.841	99.88	100	
17	L36109-12	RC-01V1(5-15)	RPLL		03/22/17 6:57	0.5	7.5	5	5	50			1.286	7.563	7.512	99.19	101	
18	L36109-13	RC-10V1(5-22)	RPLL		03/22/17 8:13	0.5	7.5	5	5	50			1.291	7.463	7.423	99.35	101	
19	L36109-14	SS-16 (GRAB)	RPLL		03/22/17 9:29	0.5	7.5	5	5	50			1.291	7.194	7.102	98.44	102	
20	L36109-15	RC-10V1(5-22)DUP	RPLL		03/22/17 10:44	0.5	7.5	5	5	50			1.295	7.155	7.119	99.39	101	

Report Comments: _____

Internal Comments _____

AREV: JLW 3/22/17
Initials, Date

SREV: GRA 3-22-17
Initials, Date

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG419750

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 03/21/2017 10:45
Start Date/Time: 03/21/2017 10:45
End Date/Time: 03/22/2017 10:45

Sample	Login Comments
L36109-01	ZIPLOCK -- RELOG OF L35641-01 || Delivered to Soils.
L36109-01MS	ICPMS Spike
L36109-01MSD	ICPMS Spike
L36109-02	ZIPLOCK -- RELOG OF L35641-02 || Delivered to Soils.
L36109-03	ZIPLOCK -- RELOG OF L35641-03 || Delivered to Soils.
L36109-04	ZIPLOCK -- RELOG OF L35641-04 || Delivered to Soils.
L36109-05	ZIPLOCK -- RELOG OF L35641-05 || Delivered to Soils.
L36109-06	ZIPLOCK -- RELOG OF L35641-06 || Delivered to Soils.
L36109-07	ZIPLOCK -- RELOG OF L35641-07 || Delivered to Soils.
L36109-08	ZIPLOCK -- RELOG OF L35641-08 || Delivered to Soils.
L36109-09	ZIPLOCK -- RELOG OF L35641-09 || Delivered to Soils.
L36109-10	ZIPLOCK -- RELOG OF L35641-10 || Delivered to Soils.
L36109-11	ZIPLOCK -- RELOG OF L35641-11 || Delivered to Soils.
L36109-12	ZIPLOCK -- RELOG OF L35641-12 || Delivered to Soils.
L36109-13	ZIPLOCK -- RELOG OF L35641-13 || Delivered to Soils.
L36109-14	ZIPLOCK -- RELOG OF L35641-14 || Delivered to Soils.
L36109-15	ZIPLOCK -- RELOG OF L35641-15 || Delivered to Soils.

Report Comments: _____

Internal Comments _____

L36109-1703281441

AREV: JLW 3/22/17
Initials, Date

SREV: _____
Initials, Date

3/22/2017 11:28:46 AM 40717

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: JCW
Date: 3/22/17

Approved: GLA
Date: 3-22-17

Analyst: BCC

Workgroup: WG419750

Analysis Date: 3/21/17 - 3/22/17

Sample type used: SO

Extraction / Digestion / Analysis / (Prep) / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	X	✓	
2. Is the %solid or TS attached for dilution factors?			X ✓
3. Were proper volumes of reagents used per final volume?	X	✓	
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, (R&P)? LL	X	✓	
5. Were the dilution factor calculation checked (final volume, weight, %solid)?	✓		X ✓ CGA 3-22-17
6. Did the RPD pass? AD QC -	X	✓	
7. Does all the spike information correlate with each other?	X	✓	
8. Is the appropriate spike in the computer-designated line?	X	✓	
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	X	✓	
10. Is the standard/reagent information complete and current?	X	✓	
11. Is your instrument calibration passing (and included in the data package if needed)?	X	✓	
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?		✓	

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
50mL Digestion Tubes	1610138	
HNO3	53009	8-26-18
H2O2	53040	12-31-18
HCl	52733	7-26-19

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG419750

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 03/21/2017 10:45
Start Date/Time: 3/21/17 10:45 AM
End Date/Time: 3/22/17 10:45 AM

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	HNO3 (mL)	H2O2 (mL)	HCl (mL)	Soil Extract Volume (mL)	SCN Volume (mL)	Air Dry or Percent Solid (%)	Pan Weight (g)	Pan and Sample Weight (g)	Dried Sample and Pan Weight (g)	Air Dry Solids (%)	Dilution	Comments
1	WG419750PBS	NONE				0	7.5	5	5	50			1.299	~~1.299~~ 7.898	1.299 BCC 3-21-17			
2	WG419750LCSS	PCN52822				0.500												
3	WG419750LCSSD	PCN52822				0.500												
4	L36109-01	RC-40V1(22-37)	RPLL			0.500							1.302	7.102	7.066			
5	L36109-01MS	MS170209-3				0.500					0.250		1.290	7.175	7.137			AD QOC
6	L36109-01MSD	MS170209-3				0.500					0.250							
7	L36109-02	RC-03V1(20-30)				0.500							1.295	7.183	~~7.137~~ 7.162 JLW 3/22/17			
8	L36109-03	RC-07V1(40-55)				0.500							1.293	7.113	7.089			
9	L36109-04	RC-11V1(30-40)				0.500							1.295	7.002	6.989			
10	L36109-05	RC-19V1(42-52)				0.500							1.291	7.072	7.052			
11	L36109-06	RC-21V1(27-37)				0.500							1.293	7.001	6.986			
12	L36109-07	RC-21V1(107-117)				0.500							1.294	7.199	7.182			
13	L36109-08	RC-24V1(27-42)				0.500							1.285	8.116	8.091			
14	L36109-09	RC-24V1(102-112)				0.500							1.291	7.279	7.267			
15	L36109-10	RC-28V1(37-48)				0.500							1.290	7.326	7.302			
16	L36109-11	RC-38V1(52-62)				0.506							1.290	7.849	7.841			
17	L36109-12	RC-01V1(5-15)				0.500							1.286	7.563	7.512			
18	L36109-13	RC-10V1(5-22)				0.500							1.291	7.463	7.423			
19	L36109-14	SS-16 (GRAB)				0.500							1.291	7.194	7.102			
20	L36109-15	RC-10V1(5-22)DUP				0.500							1.295	7.155	7.119			

Report Comments: _____

AREV: JLW 3/22/17
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

L36109-1703281441

3050 ICP ICPMS

QC List Type: I-X-3050
QCListMatClass: SOLID
Bench Sheet List: R-GROSS-AB
QC Ref: SP-3050MSICP
Group ID: SP-G-3050-MSICP
Method Ref: M3050B
SOP Ref: SOPSO28/SOPSO029

WG419750

ACZ Laboratories, Inc

Instrument ID: SOILSPREP
Analyst: BCC
ACZ Dept: 20
Create Date: 03/21/2017 10:45
Start Date/Time: 3/21/17 10:45 AM
End Date/Time: 3/22/17 10:45 AM

Sample	Login Comments
L36109-01	ZIPLOCK -- RELOG OF L35641-01 || Delivered to Soils.
L36109-01MS	ICPMS Spike
L36109-01MSD	ICPMS Spike
L36109-02	ZIPLOCK -- RELOG OF L35641-02 || Delivered to Soils.
L36109-03	ZIPLOCK -- RELOG OF L35641-03 || Delivered to Soils.
L36109-04	ZIPLOCK -- RELOG OF L35641-04 || Delivered to Soils.
L36109-05	ZIPLOCK -- RELOG OF L35641-05 || Delivered to Soils.
L36109-06	ZIPLOCK -- RELOG OF L35641-06 || Delivered to Soils.
L36109-07	ZIPLOCK -- RELOG OF L35641-07 || Delivered to Soils.
L36109-08	ZIPLOCK -- RELOG OF L35641-08 || Delivered to Soils.
L36109-09	ZIPLOCK -- RELOG OF L35641-09 || Delivered to Soils.
L36109-10	ZIPLOCK -- RELOG OF L35641-10 || Delivered to Soils.
L36109-11	ZIPLOCK -- RELOG OF L35641-11 || Delivered to Soils.
L36109-12	ZIPLOCK -- RELOG OF L35641-12 || Delivered to Soils.
L36109-13	ZIPLOCK -- RELOG OF L35641-13 || Delivered to Soils.
L36109-14	ZIPLOCK -- RELOG OF L35641-14 || Delivered to Soils.
L36109-15	ZIPLOCK -- RELOG OF L35641-15 || Delivered to Soils.

Report Comments:

Internal Comments

L36109-1703281441

AREV: JLW 3/22/17
Initials, Date

SREV:
Initials, Date

3/21/2017 10:45:38 AM 40717

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG419750

Date Reported: 22-Mar-17
Run ID: R1515849
Date Analyzed: 21-Mar-17
ICAL Workgroup:
Instrument ID: SOILSPREP

WG419750PBS

Tag:

Measured: 3/21/2017 10:45:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	PREP	0	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	1.299	100		g	++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	7.898	100		g	++					
SREV	PAN WEIGHT	PREP	1.299	100		g	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	100		g	++					

WG419750LCSS

Tag:

Measured: 3/21/2017 12:00:47 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

WG419750LCSSD

Tag:

Measured: 3/21/2017 1:16:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	100	100		%	++					
SREV	DILUTION	REG	100	100			++					
SREV	H2O2	PREP	5	100		mL	++					
SREV	HCL	PREP	5	100		mL	++					
SREV	HNO3	PREP	7.5	100		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	100		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	100		g	++					

L36109-01

Tag:

Measured: 3/21/2017 2:32:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.38	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.066	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.102	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.302	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L36109-01MS

Tag:

Measured: 3/21/2017 3:48:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	99.38	101		%	++					
SREV	AIR DRY SOLIDS	PREP	99.35	101		%	++					
SREV	DILUTION	REG	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	7.137	101		g	++					
SREV	H2O2	PREP	5	101		mL	++					
SREV	HCL	PREP	5	101		mL	++					
SREV	HNO3	PREP	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	7.175	101		g	++					
SREV	PAN WEIGHT	PREP	1.29	101		g	++					
SREV	SCN VOLUME	PREP	0.25	101		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	101		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	101		g	++					

L36109-01MSD

Tag:

Measured: 3/21/2017 5:03:55 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY OR PERCENT SOLID	PREP	99.38	101		%	++					
SREV	DILUTION	REG	101	101			++					
SREV	H2O2	PREP	5	101		mL	++					
SREV	HCL	PREP	5	101		mL	++					
SREV	HNO3	PREP	7.5	101		mL	++					
SREV	SCN VOLUME	PREP	0.25	101		mL	++					
SREV	VOLUME, SOIL EXTRACT	PREP	50	101		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0.5	101		g	++					

L36109-02

Tag:

Measured: 3/21/2017 6:19:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.64	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.162	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.183	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.295	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-03

Tag:

Measured: 3/21/2017 7:35:29 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.59	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.089	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.113	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.293	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-04

Tag:

Measured: 3/21/2017 8:51:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.77	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	6.989	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.002	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.295	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-05

Tag:

Measured: 3/21/2017 10:07:03 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.65	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.052	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.072	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.291	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-06

Tag:

Measured: 3/21/2017 11:22:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.74	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	6.986	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.001	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.293	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-07

Tag:

Measured: 3/22/2017 12:38:37 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.71	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.182	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.199	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.294	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-08

Tag:

Measured: 3/22/2017 1:54:24 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.63	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	8.091	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	8.116	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.285	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-09

Tag:

Measured: 3/22/2017 3:10:11 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.8	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.267	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.279	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.291	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-10

Tag:

Measured: 3/22/2017 4:25:58 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.6	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.302	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.326	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.29	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-11

Tag:

Measured: 3/22/2017 5:41:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.88	100		%	++					
SREV	DILUTION	X-MS-3050	100	100			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.841	100		g	++					
SREV	H2O2	X-MS-3050	5	100		mL	++					
SREV	HCL	X-MS-3050	5	100		mL	++					
SREV	HNO3	X-MS-3050	7.5	100		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.849	100		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.29	100		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	100		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	100		g	++					

L36109-12

Tag:

Measured: 3/22/2017 6:57:32 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.19	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.512	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.563	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.286	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L36109-13

Tag:

Measured: 3/22/2017 8:13:19 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.35	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.423	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.463	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.291	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

L36109-14

Tag:

Measured: 3/22/2017 9:29:06 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	98.44	102		%	++					
SREV	DILUTION	X-MS-3050	102	102			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.102	102		g	++					
SREV	H2O2	X-MS-3050	5	102		mL	++					
SREV	HCL	X-MS-3050	5	102		mL	++					
SREV	HNO3	X-MS-3050	7.5	102		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.194	102		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.291	102		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	102		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	102		g	++					

L36109-15

Tag:

Measured: 3/22/2017 10:44:53 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	AIR DRY SOLIDS	X-MS-3050	99.39	101		%	++					
SREV	DILUTION	X-MS-3050	101	101			++					
SREV	DRIED SAMPLE AND PAN WEIGHT	X-MS-3050	7.119	101		g	++					
SREV	H2O2	X-MS-3050	5	101		mL	++					
SREV	HCL	X-MS-3050	5	101		mL	++					
SREV	HNO3	X-MS-3050	7.5	101		mL	++					
SREV	PAN AND SAMPLE WEIGHT	X-MS-3050	7.155	101		g	++					
SREV	PAN WEIGHT	X-MS-3050	1.295	101		g	++					
SREV	VOLUME, SOIL EXTRACT	X-MS-3050	50	101		mL	++					
SREV	WEIGHT, SAMPLE	X-MS-3050	0.5	101		g	++					

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG419809

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: DBT
ACZ Dept: 25
Create Date: 03/22/2017 9:04
Start Date/Time: 03/22/2017 9:30
End Date/Time: 03/23/2017 9:00

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan And Sample Weight (g)	Dried Sample And Pan Weight (g)	Percent Solid (%)	Percent Moisture (%)	Comments
1	WG419809PBS	NONE	AS REC		03/22/17 9:30	1.275	12.205	1.274	-.01	100.01	
2	L36109-01	RC-40V1(22-37)	AS REC		03/22/17 10:58	1.274	10.142	9.228	89.69	10.31	
3	L36109-01DUP	NONE	AS REC		03/22/17 12:26	1.273	9.836	9.146	91.94	8.06	
4	L36109-02	RC-03V1(20-30)	AS REC		03/22/17 13:54	1.274	10.789	8.697	78.01	21.99	
5	L36109-03	RC-07V1(40-55)	AS REC		03/22/17 15:22	1.272	10.267	9.368	90.01	9.99	
6	L36109-04	RC-11V1(30-40)	AS REC		03/22/17 16:50	1.271	10.01	9.353	92.48	7.52	
7	L36109-05	RC-19V1(42-52)	AS REC		03/22/17 18:18	1.269	10.924	9.657	86.88	13.12	
8	L36109-06	RC-21V1(27-37)	AS REC		03/22/17 19:46	1.272	10.861	10.002	91.04	8.96	
9	L36109-07	RC-21V1(107-117)	AS REC		03/22/17 21:15	1.273	9.323	8.827	93.84	6.16	
10	L36109-08	RC-24V1(27-42)	AS REC		03/22/17 22:43	1.284	10.38	9.533	90.69	9.31	
11	L36109-09	RC-24V1(102-112)	AS REC		03/23/17 0:11	1.273	10.447	9.3	87.50	12.50	
12	L36109-10	RC-28V1(37-48)	AS REC		03/23/17 1:39	1.277	9.582	8.299	84.55	15.45	
13	L36109-11	RC-38V1(52-62)	AS REC		03/23/17 3:07	1.269	10.692	10.052	93.21	6.79	
14	L36109-12	RC-01V1(5-15)	AS REC		03/23/17 4:35	1.278	10.044	8.164	78.55	21.45	
15	L36109-13	RC-10V1(5-22)	AS REC		03/23/17 6:03	1.28	10.911	9.454	84.87	15.13	
16	L36109-14	SS-16 (GRAB)	AS REC		03/23/17 7:32	1.28	10.788	9.03	81.51	18.49	
17	L36109-15	RC-10V1(5-22)DUP	AS REC		03/23/17 9:00	1.284	11.607	10.308	87.42	12.58	

Report Comments: _____

Internal Comments _____

AREV: DBT . 3/23/17
Initials, Date

SREV: GLA 3-23-17
Initials, Date

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG419809

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: DBT
ACZ Dept: 25
Create Date: 03/22/2017 9:04
Start Date/Time: 03/22/2017 9:30
End Date/Time: 03/23/2017 9:00

Sample	Login Comments
L36109-01	ZIPLOCK -- RELOG OF L35641-01 || Delivered to Soils.
L36109-02	ZIPLOCK -- RELOG OF L35641-02 || Delivered to Soils.
L36109-03	ZIPLOCK -- RELOG OF L35641-03 || Delivered to Soils.
L36109-04	ZIPLOCK -- RELOG OF L35641-04 || Delivered to Soils.
L36109-05	ZIPLOCK -- RELOG OF L35641-05 || Delivered to Soils.
L36109-06	ZIPLOCK -- RELOG OF L35641-06 || Delivered to Soils.
L36109-07	ZIPLOCK -- RELOG OF L35641-07 || Delivered to Soils.
L36109-08	ZIPLOCK -- RELOG OF L35641-08 || Delivered to Soils.
L36109-09	ZIPLOCK -- RELOG OF L35641-09 || Delivered to Soils.
L36109-10	ZIPLOCK -- RELOG OF L35641-10 || Delivered to Soils.
L36109-11	ZIPLOCK -- RELOG OF L35641-11 || Delivered to Soils.
L36109-12	ZIPLOCK -- RELOG OF L35641-12 || Delivered to Soils.
L36109-13	ZIPLOCK -- RELOG OF L35641-13 || Delivered to Soils.
L36109-14	ZIPLOCK -- RELOG OF L35641-14 || Delivered to Soils.
L36109-15	ZIPLOCK -- RELOG OF L35641-15 || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: DBT
Date: 3/23/17

Approved: CQA
Date: 3-23-17

Analyst: DBT

Workgroup: WG419809

Analysis Date: 3/22/2017

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓	✓	
2. Is the %solid or TS attached for dilution factors?			✓ ✓
3. Were proper volumes of reagents used per final volume?			✓ ✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓	✓	
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓ ✓
6. Did the RPD pass?	✓	✓	
7. Does all the spike information correlate with each other?			✓
8. Is the appropriate spike in the computer-designated line?			✓ ✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓	✓	
10. Is the standard/reagent information complete and current?			✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓	✓	
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?		✓	

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG419809

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: DBT
ACZ Dept: 25
Create Date: 03/22/2017 9:04
Start Date/Time: 3/22/17 9:30 a
End Date/Time: 3/23/17 9:00 a

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan And Sample Weight (g)	Dried Sample And Pan Weight (g)	Percent Solid (%)	Percent Moisture (%)	Comments
1	WG419809PBS	NONE				1.275	12.205	1.274			
2	L36109-01	RC-40V1(22-37)				1.274	10.142	9.228			
3	L36109-01DUP	NONE				1.273	9.836	~~9.48~~ 9.46 DBT 3/23/17			
4	L36109-02	RC-03V1(20-30)				1.274	10.789	8.697			
5	L36109-03	RC-07V1(40-55)				1.272	10.267	9.368			
6	L36109-04	RC-11V1(30-40)				1.271	10.010	9.353			
7	L36109-05	RC-19V1(42-52)				1.269	~~10.962~~	DBT 3/22/17 10.924 9.657			
8	L36109-06	RC-21V1(27-37)				1.272	10.861	10.002			
9	L36109-07	RC-21V1(107-117)				1.273	~~9.337~~	DBT 3/22/17 9.323 ~~8.837~~			
10	L36109-08	RC-24V1(27-42)				1.284	10.380	9.533			
11	L36109-09	RC-24V1(102-112)				1.273	10.447	9.300			
12	L36109-10	RC-28V1(37-48)				1.277	9.582	8.299			
13	L36109-11	RC-38V1(52-62)				1.269	10.692	10.052			
14	L36109-12	RC-01V1(5-15)				1.278	10.044	8.164			
15	L36109-13	RC-10V1(5-22)				1.280	10.911	9.454			
16	L36109-14	SS-16 (GRAB)				1.280	10.768	9.030			
17	L36109-15	RC-10V1(5-22)DUP				1.284	11.607	10.308			

use same Bags.

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

L36109-1703281441

SREV: _____
Initials, Date

Percent Solids

QC List Type: QC-MST-PCNT
QCListMatClass: SOLID
Bench Sheet List: I-MST-PCNT
QC Ref: PBS-DUP
Group ID: SA-G-PCNT-SOLID
Method Ref: USDA
SOP Ref: SOPSO026

WG419809

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 03/22/2017 9:04
Start Date/Time:
End Date/Time:

Sample	Login Comments
L36109-01	ZIPLOCK -- RELOG OF L35641-01 || Delivered to Soils.
L36109-02	ZIPLOCK -- RELOG OF L35641-02 || Delivered to Soils.
L36109-03	ZIPLOCK -- RELOG OF L35641-03 || Delivered to Soils.
L36109-04	ZIPLOCK -- RELOG OF L35641-04 || Delivered to Soils.
L36109-05	ZIPLOCK -- RELOG OF L35641-05 || Delivered to Soils.
L36109-06	ZIPLOCK -- RELOG OF L35641-06 || Delivered to Soils.
L36109-07	ZIPLOCK -- RELOG OF L35641-07 || Delivered to Soils.
L36109-08	ZIPLOCK -- RELOG OF L35641-08 || Delivered to Soils.
L36109-09	ZIPLOCK -- RELOG OF L35641-09 || Delivered to Soils.
L36109-10	ZIPLOCK -- RELOG OF L35641-10 || Delivered to Soils.
L36109-11	ZIPLOCK -- RELOG OF L35641-11 || Delivered to Soils.
L36109-12	ZIPLOCK -- RELOG OF L35641-12 || Delivered to Soils.
L36109-13	ZIPLOCK -- RELOG OF L35641-13 || Delivered to Soils.
L36109-14	ZIPLOCK -- RELOG OF L35641-14 || Delivered to Soils.
L36109-15	ZIPLOCK -- RELOG OF L35641-15 || Delivered to Soils.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L36109-1703281441

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG419809

Date Reported: 23-Mar-17
Run ID: R1516109
Date Analyzed: 22-Mar-17
ICAL Workgroup:
Instrument ID: SOILS

WG419809PBS

Tag:

Measured: 3/22/2017 9:30:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	1.274	1		g	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	12.205	1		g	++					
SREV	PAN WEIGHT	PREP	1.275	1		g	++					
SREV	PERCENT SOLID	FOUND		1	U	%	++	0.1	0.5			

L36109-01

Tag:

Measured: 3/22/2017 10:58:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.228	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.142	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.274	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	10.3	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	89.7	1		%	++	0.1	0.5		TB	

L36109-01DUP

Tag:

Measured: 3/22/2017 12:26:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	DRIED SAMPLE AND PAN WEIGHT	PREP	9.146	1		g	++					
SREV	PAN AND SAMPLE WEIGHT	PREP	9.836	1		g	++					
SREV	PAN WEIGHT	PREP	1.273	1		g	++					
SREV	PERCENT MOISTURE	FOUND	8.06	1		%	++	0.1	0.5			
SREV	PERCENT MOISTURE	RPD	24	1		%	ALRT	0.1	0.5			
SREV	PERCENT SOLID	FOUND	91.94	1		%	++	0.1	0.5			
SREV	PERCENT SOLID	RPD	2	1		%	++	0.1	0.5			

L36109-02

Tag:

Measured: 3/22/2017 1:54:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.697	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.789	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.274	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	22.0	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	78.0	1		%	++	0.1	0.5		TB	

L36109-03

Tag:

Measured: 3/22/2017 3:22:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.368	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.267	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.272	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	10.0	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	90.0	1		%	++	0.1	0.5		TB	

L36109-04

Tag: Measured: 3/22/2017 4:50:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.353	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.01	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.271	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	7.5	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	92.5	1		%	++	0.1	0.5		TB	

L36109-05

Tag: Measured: 3/22/2017 6:18:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.657	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.924	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.269	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	13.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	86.9	1		%	++	0.1	0.5		TB	

L36109-06

Tag: Measured: 3/22/2017 7:46:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	10.002	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.861	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.272	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	9.0	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	91.0	1		%	++	0.1	0.5		TB	

L36109-07

Tag: Measured: 3/22/2017 9:15:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.827	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.323	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.273	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	6.2	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	93.8	1		%	++	0.1	0.5		TB	

L36109-08

Tag: Measured: 3/22/2017 10:43:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.533	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.38	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.284	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	9.3	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	90.7	1		%	++	0.1	0.5		TB	

L36109-09

Tag: Measured: 3/23/2017 12:11:20 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.3	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.447	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.273	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	12.5	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	87.5	1		%	++	0.1	0.5		TB	

L36109-10

Tag: Measured: 3/23/2017 1:39:28 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.299	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	9.582	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.277	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	15.5	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	84.6	1		%	++	0.1	0.5		TB	

L36109-11

Tag: Measured: 3/23/2017 3:07:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	10.052	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.692	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.269	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	6.8	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	93.2	1		%	++	0.1	0.5		TB	

L36109-12

Tag: Measured: 3/23/2017 4:35:44 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	8.164	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.044	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.278	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	21.5	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	78.6	1		%	++	0.1	0.5		TB	

L36109-13

Tag: Measured: 3/23/2017 6:03:52 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.454	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.911	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.28	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	15.1	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	84.9	1		%	++	0.1	0.5		TB	

L36109-14

Tag: Measured: 3/23/2017 7:32:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	9.03	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	10.788	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.28	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	18.5	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	81.5	1		%	++	0.1	0.5		TB	

L36109-15

Tag: Measured: 3/23/2017 9:00:08 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	DRIED SAMPLE AND PAN WEIGHT	PREP	10.308	1		g	++				TB	
NEED	PAN AND SAMPLE WEIGHT	PREP	11.607	1		g	++				TB	
NEED	PAN WEIGHT	PREP	1.284	1		g	++				TB	
NEED	PERCENT MOISTURE	REG	12.6	1		%	++	0.1	0.5		TB	
SREV	PERCENT SOLID	NT-SOLID	87.4	1		%	++	0.1	0.5		TB	

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG419782

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: DBT
ACZ Dept: 25
Create Date: 03/21/2017 14:15
Start Date/Time: 03/21/2017 14:30
End Date/Time: 03/21/2017 15:29

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan and Sample Weight (g)	Sample Weight (g)	Comments
1	L36109-01	RC-40V1(22-37)	AS REC		03/21/17 14:30	0	6107.1	6107.1	
2	L36109-02	RC-03V1(20-30)	AS REC		03/21/17 14:34	0	15038.7	15038.7	
3	L36109-03	RC-07V1(40-55)	AS REC		03/21/17 14:38	0	5643.4	5643.4	
4	L36109-04	RC-11V1(30-40)	AS REC		03/21/17 14:42	0	5321.3	5321.3	
5	L36109-05	RC-19V1(42-52)	AS REC		03/21/17 14:47	0	5746.6	5746.6	
6	L36109-06	RC-21V1(27-37)	AS REC		03/21/17 14:51	0	5498.5	5498.5	
7	L36109-07	RC-21V1(107-117)	AS REC		03/21/17 14:55	0	3655.1	3655.1	
8	L36109-08	RC-24V1(27-42)	AS REC		03/21/17 14:59	0	15412.3	15412.3	
9	L36109-09	RC-24V1(102-112)	AS REC		03/21/17 15:04	0	7877.8	7877.8	
10	L36109-10	RC-28V1(37-48)	AS REC		03/21/17 15:08	0	5052.1	5052.1	
11	L36109-11	RC-38V1(52-62)	AS REC		03/21/17 15:12	0	12229.3	12229.3	
12	L36109-12	RC-01V1(5-15)	AS REC		03/21/17 15:17	0	6167.7	6167.7	
13	L36109-13	RC-10V1(5-22)	AS REC		03/21/17 15:21	0	4931.1	4931.1	
14	L36109-14	SS-16 (GRAB)	AS REC		03/21/17 15:25	0	19940	19940	
15	L36109-15	RC-10V1(5-22)DUP	AS REC		03/21/17 15:29	0	4931.1	4931.1	

Report Comments: Includes Bag wt.

Internal Comments

AREV: DBT, 3/31/17
Initials, Date

SREV: CRA 3-23-17
Initials, Date

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG419782

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: DBT
ACZ Dept: 25
Create Date: 03/21/2017 14:15
Start Date/Time: 03/21/2017 14:30
End Date/Time: 03/21/2017 15:29

Sample	Login Comments
L36109-01	ZIPLOCK -- RELOG OF L35641-01 || Delivered to Soils.
L36109-02	ZIPLOCK -- RELOG OF L35641-02 || Delivered to Soils.
L36109-03	ZIPLOCK -- RELOG OF L35641-03 || Delivered to Soils.
L36109-04	ZIPLOCK -- RELOG OF L35641-04 || Delivered to Soils.
L36109-05	ZIPLOCK -- RELOG OF L35641-05 || Delivered to Soils.
L36109-06	ZIPLOCK -- RELOG OF L35641-06 || Delivered to Soils.
L36109-07	ZIPLOCK -- RELOG OF L35641-07 || Delivered to Soils.
L36109-08	ZIPLOCK -- RELOG OF L35641-08 || Delivered to Soils.
L36109-09	ZIPLOCK -- RELOG OF L35641-09 || Delivered to Soils.
L36109-10	ZIPLOCK -- RELOG OF L35641-10 || Delivered to Soils.
L36109-11	ZIPLOCK -- RELOG OF L35641-11 || Delivered to Soils.
L36109-12	ZIPLOCK -- RELOG OF L35641-12 || Delivered to Soils.
L36109-13	ZIPLOCK -- RELOG OF L35641-13 || Delivered to Soils.
L36109-14	ZIPLOCK -- RELOG OF L35641-14 || Delivered to Soils.
L36109-15	ZIPLOCK -- RELOG OF L35641-15 || Delivered to Soils.

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: DBT
Date: 3-21-17

Approved: CRA
Date: 3-23-17

Analyst: DBT

Workgroup: WG919782

Analysis Date: 3/21/2017

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓	✓	
2. Is the %solid or TS attached for dilution factors?			✓ ✓
3. Were proper volumes of reagents used per final volume?			✓ ✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓	✓	
5. Were the dilution factor calculation checked (final volume, weight, %solid)?			✓ ✓
6. Did the RPD pass?			✓ ✓
7. Does all the spike information correlate with each other?			✓ ✓
8. Is the appropriate spike in the computer-designated line?			✓ ✓
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓	✓	
10. Is the standard/reagent information complete and current?			✓ ✓
11. Is your instrument calibration passing (and included in the data package if needed)?	✓	✓	
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?		✓	

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments:

Analytical Method: Sample Weight **WG** 419782

ACZ Laboratories, Inc.

Analyst:

Start Date:

End Date:

ACZ ID	bag 1	bag 2	bag 3	bag 4	bag 5	total (g)			
DBT 3/21/17 L35641-02									
~~L36109-02~~	3721.9	2507.9	4026.9	2147.0	2635.0	15,038.7			
L35641-06	4716.0	4464.1	6232.2	—	—	15,412.3			
L35641-11	6446.5	5,360.6	—	—	—	12,229.3			
L35641-14	19.94 kg					19,940 g			

Comments:

Page _____ of _____

Bench Sheet Form.XLS, 08/15/2003

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG419782

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst: DBT
ACZ Dept: 25
Create Date: 03/21/2017 14:15
Start Date/Time: 3/21/2017 2:30 p
End Date/Time: 3/21/2017 2:30 p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Pan Weight (g)	Pan and Sample Weight (g)	Sample Weight (g)	Comments
1	L36109-01	RC-40V1(22-37)				0	6107.1	Includes bag wt	
2	L36109-02	RC-03V1(20-30)				0	15,036.7		
3	L36109-03	RC-07V1(40-55)				0	5643.4		
4	L36109-04	RC-11V1(30-40)				0	5321.3		
5	L36109-05	RC-19V1(42-52)				0	5746.6		
6	L36109-06	RC-21V1(27-37)				0	5498.5		
7	L36109-07	RC-21V1(107-117)				0	3655.1		
8	L36109-08	RC-24V1(27-42)				0	15,412.3		
9	L36109-09	RC-24V1(102-112)				0	7877.8		
10	L36109-10	RC-28V1(37-48)				0	5052.1		
11	L36109-11	RC-38V1(52-62)				0	12,229.3		
12	L36109-12	RC-01V1(5-15)				0	6167.7		
13	L36109-13	RC-10V1(5-22)				0	4931.1		
14	L36109-14	SS-16 (GRAB)				0	19,940		
15	L36109-15	RC-10V1(5-22)DUP				0	4931.1		L36109-15 and -13 treated as same sample, internal duplicate

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

Sample Weight

QC List Type:
QCListMatClass: SOLID
Bench Sheet List: I-SAMPLE-WEIGH
QC Ref: NOQC
Group ID: SA-G-WEIGH-SAMPLE
Method Ref:
SOP Ref: SOPSO001

WG419782

ACZ Laboratories, Inc

Instrument ID: SOILS
Analyst:
ACZ Dept: 25
Create Date: 03/21/2017 14:15
Start Date/Time:
End Date/Time:

Sample	Login Comments
L36109-01	ZIPLOCK -- RELOG OF L35641-01 || Delivered to Soils.
L36109-02	ZIPLOCK -- RELOG OF L35641-02 || Delivered to Soils.
L36109-03	ZIPLOCK -- RELOG OF L35641-03 || Delivered to Soils.
L36109-04	ZIPLOCK -- RELOG OF L35641-04 || Delivered to Soils.
L36109-05	ZIPLOCK -- RELOG OF L35641-05 || Delivered to Soils.
L36109-06	ZIPLOCK -- RELOG OF L35641-06 || Delivered to Soils.
L36109-07	ZIPLOCK -- RELOG OF L35641-07 || Delivered to Soils.
L36109-08	ZIPLOCK -- RELOG OF L35641-08 || Delivered to Soils.
L36109-09	ZIPLOCK -- RELOG OF L35641-09 || Delivered to Soils.
L36109-10	ZIPLOCK -- RELOG OF L35641-10 || Delivered to Soils.
L36109-11	ZIPLOCK -- RELOG OF L35641-11 || Delivered to Soils.
L36109-12	ZIPLOCK -- RELOG OF L35641-12 || Delivered to Soils.
L36109-13	ZIPLOCK -- RELOG OF L35641-13 || Delivered to Soils.
L36109-14	ZIPLOCK -- RELOG OF L35641-14 || Delivered to Soils.
L36109-15	ZIPLOCK -- RELOG OF L35641-15 || Delivered to Soils.

Report Comments:

AREV:
Initials, Date

Internal Comments

SREV:
Initials, Date

L36109-1703281441

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG419782

Date Reported: 23-Mar-17
Run ID: R1515390
Date Analyzed: 21-Mar-17
ICAL Workgroup:
Instrument ID: SOILS

L36109-01

Tag:

Measured: 3/21/2017 2:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	6107.1	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	6107.1	1		g	++				N1 TB	

L36109-02

Tag:

Measured: 3/21/2017 2:34:17 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	15038.7	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	15038.7	1		g	++				N1 TB	

L36109-03

Tag:

Measured: 3/21/2017 2:38:34 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	5643.4	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	5643.4	1		g	++				N1 TB	

L36109-04

Tag:

Measured: 3/21/2017 2:42:51 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	5321.3	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	5321.3	1		g	++				N1 TB	

L36109-05

Tag:

Measured: 3/21/2017 2:47:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	5746.6	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	5746.6	1		g	++				N1 TB	

L36109-06

Tag:

Measured: 3/21/2017 2:51:25 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	5498.5	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	5498.5	1		g	++				N1 TB	

L36109-07

Tag:

Measured: 3/21/2017 2:55:42 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	3655.1	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	3655.1	1		g	++				N1 TB	

L36109-08

Tag: Measured: 3/21/2017 2:59:59 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	15412.3	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	15412.3	1		g	++				N1 TB	

L36109-09

Tag: Measured: 3/21/2017 3:04:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	7877.8	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	7877.8	1		g	++				N1 TB	

L36109-10

Tag: Measured: 3/21/2017 3:08:33 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	5052.1	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	5052.1	1		g	++				N1 TB	

L36109-11

Tag: Measured: 3/21/2017 3:12:50 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	12229.3	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	12229.3	1		g	++				N1 TB	

L36109-12

Tag: Measured: 3/21/2017 3:17:07 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	6167.7	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	6167.7	1		g	++				N1 TB	

L36109-13

Tag: Measured: 3/21/2017 3:21:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	4931.1	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	4931.1	1		g	++				N1 TB	

L36109-14

Tag: Measured: 3/21/2017 3:25:41 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	19940	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	19940	1		g	++				N1 TB	

L36109-15

Tag: Measured: 3/21/2017 3:29:58 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
NEED	PAN AND SAMPLE WEIGHT	PREP	4931.1	1		g	++				TB	
NEED	PAN WEIGHT	PREP	0	1		g	++				TB	
SREV	WEIGHT, SAMPLE	-SAMPLE	4931.1	1		g	++				N1 TB	

WG419782 Extended Qualifiers with Case Narratives

L36109-01	WEIGHT, SAMPLE	N1	All sample weights include bag weight. L36109-13, 15 same weight recorded as this was an internal DUP. Sample weights are from original L# L35641
L36109-02	WEIGHT, SAMPLE		
L36109-03	WEIGHT, SAMPLE		
L36109-04	WEIGHT, SAMPLE		
L36109-05	WEIGHT, SAMPLE		
L36109-06	WEIGHT, SAMPLE		
L36109-07	WEIGHT, SAMPLE		
L36109-08	WEIGHT, SAMPLE		
L36109-09	WEIGHT, SAMPLE		
L36109-10	WEIGHT, SAMPLE		
L36109-11	WEIGHT, SAMPLE		
L36109-12	WEIGHT, SAMPLE		
L36109-13	WEIGHT, SAMPLE		
L36109-14	WEIGHT, SAMPLE		
L36109-15	WEIGHT, SAMPLE		

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company
Project ID: L36109

Soil Preparation

WG419750 **3050 ICP ICPMS**

Sample	Date	SCN	DILUTION
WG419750PBS	03/21/17 10:45		X
WG419750LCSS	03/21/17 12:00		X
WG419750LCSSD	03/21/17 13:16		X
L36109-01	03/21/17 14:32		X
L36109-01MS	03/21/17 15:48		X
L36109-01MSD	03/21/17 17:03		X
L36109-02	03/21/17 18:19		X
L36109-03	03/21/17 19:35		X
L36109-04	03/21/17 20:51		X
L36109-05	03/21/17 22:07		X
L36109-06	03/21/17 23:22		X
L36109-07	03/22/17 00:38		X
L36109-08	03/22/17 01:54		X
L36109-09	03/22/17 03:10		X
L36109-10	03/22/17 04:25		X
L36109-11	03/22/17 05:41		X
L36109-12	03/22/17 06:57		X
L36109-13	03/22/17 08:13		X
L36109-14	03/22/17 09:29		X
L36109-15	03/22/17 10:44		X

ACZ Laboratories, Inc.
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Run Log by Workgroup

Monsanto Company
Project ID: L36109

Soil Analysis

WG419782 **Sample Weight**

Sample	Date	SCN	WEIGHT, SAMPLE
L36109-01	03/21/17 14:30		X
L36109-02	03/21/17 14:34		X
L36109-03	03/21/17 14:38		X
L36109-04	03/21/17 14:42		X
L36109-05	03/21/17 14:47		X
L36109-06	03/21/17 14:51		X
L36109-07	03/21/17 14:55		X
L36109-08	03/21/17 14:59		X
L36109-09	03/21/17 15:04		X
L36109-10	03/21/17 15:08		X
L36109-11	03/21/17 15:12		X
L36109-12	03/21/17 15:17		X
L36109-13	03/21/17 15:21		X
L36109-14	03/21/17 15:25		X
L36109-15	03/21/17 15:29		X

Monsanto Company
Project ID: L36109

Soil Analysis

WG419809 **Percent Solids**

Sample	Date	SCN	ERCENT MOISTUR	PERCENT SOLID
WG419809PBS	03/22/17 09:30			X
L36109-01	03/22/17 10:58			X
L36109-01DUP	03/22/17 12:26		X	X
L36109-02	03/22/17 13:54			X
L36109-03	03/22/17 15:22			X
L36109-04	03/22/17 16:50			X
L36109-05	03/22/17 18:18			X
L36109-06	03/22/17 19:46			X
L36109-07	03/22/17 21:15			X
L36109-08	03/22/17 22:43			X
L36109-09	03/23/17 00:11			X
L36109-10	03/23/17 01:39			X
L36109-11	03/23/17 03:07			X
L36109-12	03/23/17 04:35			X
L36109-13	03/23/17 06:03			X
L36109-14	03/23/17 07:32			X
L36109-15	03/23/17 09:00			X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company
Project ID: L36109

Metals Analysis

WG420063 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Se	U
WG420063ICV	03/27/17 10:10	MS170301-3	X	X	X	X
WG420063ICB	03/27/17 10:13		X	X	X	X
WG420063ICSA	03/27/17 10:17		X	X	X	X
WG420063ICSAB	03/27/17 10:20	MS170303-2	X	X	X	X
WG419750PBS	03/27/17 10:26		X	X	X	X
WG419750LCSS	03/27/17 10:29	PCN52822	X	X	X	X
WG419750LCSSD	03/27/17 10:32	PCN52822	X	X	X	X
L36109-01	03/27/17 10:35		X	X		X
L36109-01MS	03/27/17 10:38	MS170209-3	X	X	X	X
L36109-01MSD	03/27/17 10:41	MS170209-3	X	X	X	X
L36109-02	03/27/17 10:44		X	X		X
L36109-03	03/27/17 10:47		X	X		X
L36109-04	03/27/17 10:50		X	X		X
L36109-04SDL	03/27/17 10:53		X	X	X	X
WG420063CCV1	03/27/17 10:56	MS170322-4	X	X	X	X
WG420063CCB1	03/27/17 10:59		X	X	X	X
L36109-05	03/27/17 11:03			X		X
L36109-06	03/27/17 11:06			X		X
L36109-07	03/27/17 11:09			X		X
L36109-08	03/27/17 11:12			X		X
L36109-09	03/27/17 11:15			X		X
L36109-10	03/27/17 11:18			X		X
L36109-11	03/27/17 11:21			X		X
L36109-12	03/27/17 11:24			X		X
L36109-13	03/27/17 11:27			X		X
L36109-14	03/27/17 11:30			X		X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L36109

Metals Analysis

WG420063 **ICPMS Total 3050**

Sample	Date	SCN	As	Cd	Se	U
WG420063CCV2	03/27/17 11:33	MS170322-4	X	X	X	X
WG420063CCB2	03/27/17 11:36		X	X	X	X
L36109-15	03/27/17 11:39			X		X
WG420063CCV3	03/27/17 11:42	MS170322-4	X	X	X	X
WG420063CCB3	03/27/17 11:45		X	X	X	X

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Run Log by Workgroup

Monsanto Company

Project ID: L36109

Metals Analysis

WG420112 **ICPMS Total 3050**

Sample	Date	SCN	As	Se
WG420112ICV	03/27/17 15:58	MS170301-3	X	X
WG420112ICB	03/27/17 16:01		X	X
WG420112ICSA	03/27/17 16:04		X	X
WG420112ICSAB	03/27/17 16:07	MS170303-2	X	X
WG419750PBS	03/27/17 16:14		X	X
WG419750LCSS	03/27/17 16:17	PCN52822	X	X
WG419750LCSSD	03/27/17 16:20	PCN52822	X	X
L36109-01	03/27/17 16:24			X
L36109-01MS	03/27/17 16:27	MS170209-3	X	X
L36109-01MSD	03/27/17 16:30	MS170209-3	X	X
L36109-02	03/27/17 16:33			X
L36109-03	03/27/17 16:36			X
WG420112CCV1	03/27/17 16:39	MS170322-4	X	X
WG420112CCB1	03/27/17 16:42		X	X
L36109-04	03/27/17 16:45			X
L36109-05	03/27/17 16:49		X	X
L36109-06	03/27/17 16:52		X	X
L36109-07	03/27/17 16:55		X	X
L36109-08	03/27/17 16:58		X	X
L36109-09	03/27/17 17:01		X	X
L36109-10	03/27/17 17:04		X	X
L36109-10SDL	03/27/17 17:07		X	X
L36109-11	03/27/17 17:11		X	X
L36109-12	03/27/17 17:14		X	X
WG420112CCV2	03/27/17 17:17	MS170322-4	X	X
WG420112CCB2	03/27/17 17:20		X	X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L36109

Metals Analysis

WG420112 **ICPMS Total 3050**

Sample	Date	SCN	As	Se
L36109-13	03/27/17 17:23		X	X
L36109-14	03/27/17 17:26		X	X
L36109-15	03/27/17 17:30		X	X
WG420112CCV3	03/27/17 17:33	MS170322-4	X	X
WG420112CCB3	03/27/17 17:36		X	X

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID: L36109
Date Received: 03/20/2017 15:43
Received By:
Date Printed: 3/20/2017

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	X		

A change was made in the Sample I.D. Line 2-10 COC 1, Sample I.D. Line 3 COC 3 section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

The 'Relinquished By' field on the COC was not completed. The project manager is contacting the client.

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
UNKNOWN		NA		

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID:	L36109
Date Received:	03/20/2017 15:43
Received By:	
Date Printed:	3/20/2017

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

L36109 Re Log

ACZ Laboratories, Inc. ~~C35644~~ 3/20/17

2773 Downhill Drive, Steamboat Springs, CO 80487 (970) 879-6590

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1863 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc.
E-mail: leah@wolfmartinlnc.com, Rbenedetti@strata
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1863 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If samples received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]
If yes, please include state forms. Results will be reported to POU for Colorado.

Sampler's Name: David Carp Sampler's Site Information: State: Idaho Zip code: 83276 Time Zone: -7:00
Sampler's Signature: David Carpenter

PROJECT INFORMATION

Quote #: Whole-Rock - A&A
PO#: PO 4512164569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material: [ ]

ANALYSES REQUESTED

SAMPLE IDENTIFICATION	DATE-TIME	Matrix	Total Containers	Chlorine	Sample Temp						
RC-40V1 (22-37)	1-31-17 7:35AM	SO	1 ea	X	X		X				
~~SB-01_02GT (1.5-6.5)~~	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
~~SB-07GT (4-21)~~	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
~~SB-03_TP-3 (1-5)~~	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
~~TP-6 (7-10)~~	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
~~TP-8 (3.5-13)~~	1-31-17 7:35AM	SO	1 ea	X	X		X				
~~TP-9 (7-14)~~	1-31-17 7:35AM	SO	1 ea	X	X		X				
~~TP-12 (7-9)~~	1-31-17 7:35AM	SO	1 ea	X	X		X				
~~TP-14 (9-7)~~	1-31-17 7:35AM	SO	1 ea	X	X		X				
~~TP-20 (12-14)~~	1-31-17 7:35AM	SO	1 ea	X	X		X				

Matrix: Water (Surface, Well, Drinking, Waste Water) SO (Soil, Sludge, Solids) OIL (Oil, Grease, Fuel)

REMARKS

Lists #1 and #2 of required testing for all samples are attached.

(Please refer to ACZ's terms & conditions located on the reverse side of this COC)

RELINQUISHED BY:	DATE-TIME	RECEIVED BY:	DATE-TIME
		WK	2/13/17 0910

FRMAD050103.14.13 Matrix: Red = drinking water, Green = wastewater, Blue = other

L36109 Chain of Custody

ACZ Laboratories, Inc. L35641

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com

Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc.

E-mail: leah@wolfmartininc.com, Rbenedetti@strata
Telephone: 303-475-1135, 208-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com

Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: David Carr Sampler's Site Information State: Idaho Zip code: 83276 Time Zone: 7:00

Sampler's Signature: David Carpenter

PROJECT INFORMATION

Order #: PO 4512184569

Reporting state for compliance testing: Idaho

Check box if samples include NRC licensed material: [ ]

SAMPLE IDENTIFICATION	DATE-TIME	Matrix	# of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RC-03V1 (20-30)	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
RC-07V1 (40-55)	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
RC-11V1 (30-40)	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
RC-19V1 (42-52)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-21V1 (27-37)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-21V1 (107-117)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-24V1 (27-42)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-24V1 (102-112)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-28V1 (37-48)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-38V1 (52-62)	1-31-17 7:35AM	SO	1 ea	X	X		X				

Matrix: SW - Surface Water, GW - Ground Water, WW - Wastewater, DW - Drinking Water, SL (Sludge), SO (Soil), OL (Oil), Other (Specify)

REMARKS

List #1 and #2 of required testing for all samples are attached.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE-TIME	RECEIVED BY:	DATE-TIME

2

ACZ Laboratories, Inc. L35641

2773 Downhill Drive, Steamboat Springs, CO 80487 (970) 879-6590

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti
Company: Wolf Martin Inc., STRATA Inc.
E-mail: leah@wolfmartininc.com, Rbenedetti@strata
Telephone: 303-475-1135, 205-237-3400

Invoice to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company, 1853 Highway 34, Soda Springs, ID 83276
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]
If yes, please include state forms. Results will be imported to PQL for Colorado.

Sampler's Name: David Carr Sampler's Site Information State: Idaho Zip code: 83276 Time Zone: 7:00
Sampler's Signature: David Carpenier

PROJECT INFORMATION

Quote #:
PO#: RO 4512164569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

ANALYSIS REQUESTED (Attach list if more space needed)

SAMPLE IDENTIFICATION	DATE-TIME	Matrix	# of Containers								
RC-01VI (5-15)	1-31-17 7:35AM	SO	1 ea	X	X		X				
RC-10VI (5-22)	1-31-17 7:35AM	SO	1 ea	X	X		X				
(7) 5 gal pail of alluvium	1-31-17 7:35AM	SO	1 ea	X	X	X	X				
SS-1 (6-9 cm)	1-31-17 7:35	SO	1 ea	X	X		X				
RC-10VI (5-22)	1-31-17 7:35	SO	1 ea	X	X		X				

Matrix: SW (Surface Water), GW (Ground Water), WW (Waste Water), DW (Drinking Water), SL (Sludge), SO (Soil), OL (Oil), OW (Other Liquid)

REMARKS

Lists #1 and #2 of required testing for all samples are attached.

Please refer to ACZ's terms & conditions located on the reverse side of this COC

RELINQUISHED BY:	DATE-TIME	RECEIVED BY:	DATE-TIME
		AR	2/3/17 0950

FRM-ADM 03 14 13 White - Return with sample Yellow - Retain for your records

3

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Revised Analytical Report

May 02, 2017

Report to:
Molly Prickett
Monsanto Company
1853 Hwy 34 N
Soda Springs, ID 83276

Bill to:
Molly Pricket
Monsanto Company
1853 Highway 34
Soda Springs, ID 83276

cc: Leah Wolf Martin, Rocky Benedetti

Project ID: 4512184569
ACZ Project ID: L36360

Molly Prickett:

Enclosed are revised analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 04, 2017 and originally reported on April 18, 2017. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZ's project number, L36360. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L36360. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after May 18, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

MONSANTO COMPANY

Level IV Data Package – L36360
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    c. Inorganic QC Summary
        i. Calibration data
        ii. LCSW, LFB, LRB, PBW, SIC, PQV results
        iii. Matrix/Analytical Spike Recoveries
        iv. Duplicate Precision
    d. Inorganic Extended Qualifier Page
    e. Certification Qualifiers

6. Inorganic Raw Data - **Pages 23 to 89**

7. Run Logs - **Pages 90 to 90**

8. Sample Receipt Documents - **Pages 91 to 94**
    a. Sample Receipt Form
    b. Chain of Custody – Copy

ACZ Laboratories, Inc.
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Sample Summary

ACZ Project ID: ***L36360***

SAMPLE ID	LAB NO.	SAMPLE DATE	SAMPLE TIME
SB-07GT (4-21)	L36360-01	4/4/2017	0:00
TP-12 (7-9)	L36360-02	4/4/2017	0:00
TP-12 (7-9) DUPLICATE	L36360-03	4/4/2017	0:00
TP-14 (3-7)	L36360-04	4/4/2017	0:00
RC-01V1(5-15)	L36360-05	4/4/2017	0:00
RC-10V1(5-22)	L36360-06	4/4/2017	0:00
RC-03V1(20-30)	L36360-07	4/4/2017	0:00
RC-07V1(40-55)	L36360-08	4/4/2017	0:00
RC-11V1(30-40)	L36360-09	4/4/2017	0:00
RC-28V1(37-48)	L36360-10	4/4/2017	0:00
RC-40V1(22-37)	L36360-11	4/4/2017	0:00
RC-40V1(22-37) DUPLICATE	L36360-12	4/4/2017	0:00

Monsanto Company

May 02, 2017

Project ID: 4512184569
ACZ Project ID: L36360

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 12 soil samples from Monsanto Company on April 4, 2017. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L36360. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures.

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: SB-07GT (4-21)

ACZ Sample ID: ***L36360-01***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 16:33	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0016		*	mg/L	0.0002	0.001	04/14/17 18:09	mfm
Cadmium (1312)	M6020 ICP-MS	1	0.0001	B	*	mg/L	0.0001	0.0005	04/14/17 18:09	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0051		*	mg/L	0.0001	0.0003	04/14/17 18:09	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/12/17 20:12	rbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-12 (7-9)

ACZ Sample ID: ***L36360-02***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 17:41	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0016		*	mg/L	0.0002	0.001	04/14/17 18:21	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:21	mfm
Selenium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0003	04/14/17 18:21	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 0:20	rbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-12 (7-9) DUPLICATE

ACZ Sample ID: ***L36360-03***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 17:58	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0014		*	mg/L	0.0002	0.001	04/14/17 18:24	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:24	mfm
Selenium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0003	04/14/17 18:24	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312				*				04/13/17 1:22	rbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: TP-14 (3-7)

ACZ Sample ID: ***L36360-04***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 18:14	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0005	B	*	mg/L	0.0002	0.001	04/14/17 18:27	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:27	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0089		*	mg/L	0.0001	0.0003	04/14/17 18:27	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 2:24	rbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-01V1(5-15)

ACZ Sample ID: ***L36360-05***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 18:31	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0015		*	mg/L	0.0002	0.001	04/14/17 18:30	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:30	mfm
Selenium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0003	04/14/17 18:30	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 3:26	rbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-10V1(5-22)

ACZ Sample ID: ***L36360-06***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 18:48	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0014		*	mg/L	0.0002	0.001	04/14/17 18:42	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:42	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0002	B	*	mg/L	0.0001	0.0003	04/14/17 18:42	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 5:30	rbt

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-03V1(20-30)

ACZ Sample ID: ***L36360-07***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 19:05	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0015		*	mg/L	0.0002	0.001	04/14/17 18:46	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:46	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0006		*	mg/L	0.0001	0.0003	04/14/17 18:46	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 6:32	rbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-07V1(40-55)

ACZ Sample ID: ***L36360-08***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 19:22	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.001		*	mg/L	0.0002	0.001	04/14/17 18:49	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:49	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0011		*	mg/L	0.0001	0.0003	04/14/17 18:49	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 7:34	rbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-11V1(30-40)

ACZ Sample ID: ***L36360-09***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 19:39	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0015		*	mg/L	0.0002	0.001	04/14/17 18:52	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:52	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0091		*	mg/L	0.0001	0.0003	04/14/17 18:52	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 8:36	rbt

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-28V1(37-48)

ACZ Sample ID: ***L36360-10***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 19:56	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0007	B	*	mg/L	0.0002	0.001	04/14/17 18:55	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:55	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0006		*	mg/L	0.0001	0.0003	04/14/17 18:55	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 9:38	rbt

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-40V1(22-37)

ACZ Sample ID: ***L36360-11***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 20:13	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0027		*	mg/L	0.0002	0.001	04/14/17 18:58	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 18:58	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0022		*	mg/L	0.0001	0.0003	04/14/17 18:58	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 10:41	rbt

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Monsanto Company
Project ID: 4512184569
Sample ID: RC-40V1(22-37) DUPLICATE

ACZ Sample ID: ***L36360-12***
Date Sampled: *04/04/17 00:00*
Date Received: *04/04/17*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								04/13/17 20:29	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (1312)	M6020 ICP-MS	1	0.0023		*	mg/L	0.0002	0.001	04/14/17 19:01	mfm
Cadmium (1312)	M6020 ICP-MS	1		U	*	mg/L	0.0001	0.0005	04/14/17 19:01	mfm
Selenium (1312)	M6020 ICP-MS	1	0.0016		*	mg/L	0.0001	0.0003	04/14/17 19:01	mfm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Synthetic Precip. Leaching Procedure	M1312								04/13/17 11:43	rbt

** Please refer to Qualifier Reports for details.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Monsanto Company

ACZ Project ID: ***L36360***

Arsenic (1312) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG421213													
WG421213ICV	ICV	04/14/17 17:47	MS170404-2	.05		.05038	mg/L	101	90	110			
WG421213ICB	ICB	04/14/17 17:50				U	mg/L		-0.0006	0.0006			
WG421213ICSA	ICSA	04/14/17 17:53				U	mg/L		-0.001	0.001			
WG421213ICSAB	ICSAB	04/14/17 17:56	MS170303-2	.02004		.01951	mg/L	97	80	120			
WG421039PBS	PBS	04/14/17 18:03				U	mg/L		-0.0006	0.0006			
WG421039LFB	LFB	04/14/17 18:06	MS170321-3	.0501		.05039	mg/L	101	80	120			
L36360-01MS	MS	04/14/17 18:12	MS170321-3	.0501	.0016	.0537	mg/L	104	75	125			
L36360-01MSD	MSD	04/14/17 18:15	MS170321-3	.0501	.0016	.05213	mg/L	101	75	125	3	20	
L36360-01DUP	DUP	04/14/17 18:18			.0016	.00199	mg/L				22	20	RA
WG421213CCV1	CCV	04/14/17 18:33	MS170322-4	.1002		.09939	mg/L	99	90	110			
WG421213CCB1	CCB	04/14/17 18:36				U	mg/L		-0.0006	0.0006			
L36360-05SDL	SDL	04/14/17 18:39			.0015	U	mg/L				33	10	ZG
WG421213CCV2	CCV	04/14/17 19:04	MS170322-4	.1002		.1007	mg/L	100	90	110			
WG421213CCB2	CCB	04/14/17 19:07				U	mg/L		-0.0006	0.0006			

Cadmium (1312) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG421213													
WG421213ICV	ICV	04/14/17 17:47	MS170404-2	.05		.05083	mg/L	102	90	110			
WG421213ICB	ICB	04/14/17 17:50				U	mg/L		-0.0003	0.0003			
WG421213ICSA	ICSA	04/14/17 17:53				U	mg/L		-0.0005	0.0005			
WG421213ICSAB	ICSAB	04/14/17 17:56	MS170303-2	.02002		.01948	mg/L	97	80	120			
WG421039PBS	PBS	04/14/17 18:03				U	mg/L		-0.0003	0.0003			
WG421039LFB	LFB	04/14/17 18:06	MS170321-3	.05005		.05002	mg/L	100	80	120			
L36360-01MS	MS	04/14/17 18:12	MS170321-3	.05005	.0001	.0511	mg/L	102	75	125			
L36360-01MSD	MSD	04/14/17 18:15	MS170321-3	.05005	.0001	.04953	mg/L	99	75	125	3	20	
L36360-01DUP	DUP	04/14/17 18:18			.0001	.00027	mg/L				92	20	RA
WG421213CCV1	CCV	04/14/17 18:33	MS170322-4	.1001		.1027	mg/L	103	90	110			
WG421213CCB1	CCB	04/14/17 18:36				U	mg/L		-0.0003	0.0003			
L36360-05SDL	SDL	04/14/17 18:39			U	U	mg/L					10	
WG421213CCV2	CCV	04/14/17 19:04	MS170322-4	.1001		.1008	mg/L	101	90	110			
WG421213CCB2	CCB	04/14/17 19:07				U	mg/L		-0.0003	0.0003			

Monsanto Company

ACZ Project ID: ***L36360***

Selenium (1312) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG421213													
WG421213ICV	ICV	04/14/17 17:47	MS170404-2	.05		.0514	mg/L	103	90	110			
WG421213ICB	ICB	04/14/17 17:50				U	mg/L		-0.0003	0.0003			
WG421213ICSA	ICSA	04/14/17 17:53				U	mg/L		-0.0003	0.0003			
WG421213ICSAB	ICSAB	04/14/17 17:56	MS170303-2	.02002		.01926	mg/L	96	80	120			
WG421039PBS	PBS	04/14/17 18:03				U	mg/L		-0.0003	0.0003			
WG421039LFB	LFB	04/14/17 18:06	MS170321-3	.05005		.05036	mg/L	101	80	120			
L36360-01MS	MS	04/14/17 18:12	MS170321-3	.05005	.0051	.05527	mg/L	100	75	125			
L36360-01MSD	MSD	04/14/17 18:15	MS170321-3	.05005	.0051	.05475	mg/L	99	75	125	1	20	
L36360-01DUP	DUP	04/14/17 18:18			.0051	.00442	mg/L				14	20	
WG421213CCV1	CCV	04/14/17 18:33	MS170322-4	.25025		.2527	mg/L	101	90	110			
WG421213CCB1	CCB	04/14/17 18:36				U	mg/L		-0.0003	0.0003			
L36360-05SDL	SDL	04/14/17 18:39			U	U	mg/L					10	
WG421213CCV2	CCV	04/14/17 19:04	MS170322-4	.25025		.2503	mg/L	100	90	110			
WG421213CCB2	CCB	04/14/17 19:07				U	mg/L		-0.0003	0.0003			

Monsanto Company ACZ Project ID: ***L36360***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L36360-01	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-02	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-03	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-04	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-05	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-06	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-07	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Monsanto Company ACZ Project ID: ***L36360***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L36360-08	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-09	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-10	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-11	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L36360-12	*N*G421213	Arsenic (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium (1312)	M6020 ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Metals Analysis

The following parameters are not offered for certification or are not covered by AZ certificate #AZ0102.

Selenium (1312)	M6020 ICP-MS

ICPMS Dissolved 1312

QC List Type: QC-ICPMS-846
QCListMatClass: LIQUID
Bench Sheet List: I-ICPMS-MWMT
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-1312
Method Ref: M6020
SOP Ref: SOPII022

WG421213

ACZ Laboratories, Inc

Instrument ID: ICPMS4
Analyst: MFM
ACZ Dept: 33
Create Date: 04/14/2017 15:44
Start Date/Time: 4/14/17
End Date/Time:

SEQ	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 13 12	CD MS 13 12	SE MS 13 12	Dilution
1	WG421213ICV	MS170404-2			1			✓	✓	✓	1
2	WG421213ICB	NONE			1			✓	✓	✓	1
3	WG421213ICSA	MS170303-1			1			✓	✓	✓	1
4	WG421213ICSAB	MS170303-2			1			✓	✓	✓	1
5	WG421213WASH	NONE			1			✓	✓	✓	1
6	WG421039PBS	NONE			1			✓	✓	✓	1
7	WG421039LFB	MS170321-3			1			✓	✓	✓	1
8	L36360-01	SB-07GT (4-21)			1			✓	✓	✓	1
9	L36360-01MS	MS170321-3			1			✓	✓	✓	1
10	L36360-01MSD	MS170321-3			1			✓	✓	✓	1
11	L36360-01DUP	NONE			1			✓	✓	✓	1
12	L36360-02	TP-12 (7-9)			1			✓	✓	✓	1
13	WG421213CCV1	MS170322-4			1			✓	✓	✓	1
14	WG421213CCB1	NONE			1			✓	✓	✓	1
15	L36360-03	TP-12 (7-9) DUPLICAT			1			✓	✓	✓	1
16	L36360-04	TP-14 (3-7)			1			✓	✓	✓	1
17	L36360-05	RC-01V1(5-15)			1			✓	✓	✓	1
18	L36360-05SDL	NONE			1			✓	✓	✓	1
19	L36360-06	RC-10V1(5-22)			1			✓	✓	✓	1
20	L36360-07	RC-03V1(20-30)			1			✓	✓	✓	1
21	L36360-08	RC-07V1(40-55)			1			✓	✓	✓	1
22	L36360-09	RC-11V1(30-40)			1			✓	✓	✓	1

Report Comments:

Internal Comments

AREV: MFM 4/17/17
Initials, Date

SREV: [illegible] 4.17.17
Initials, Date

ICPMS Dissolved 1312

QC List Type: QC-ICPMS-846
QCListMatClass: LIQUID
Bench Sheet List: I-ICPMS-MWMT
QC Ref: MA-ICPMS-T-846
Group ID: MA-G-MS-1312
Method Ref: M6020
SOP Ref: SOPII022

WG421213

ACZ Laboratories, Inc

Instrument ID: ICPMS4
Analyst:
ACZ Dept: 33
Create Date: 04/14/2017 15:44
Start Date/Time:
End Date/Time:

SE Q	ACZ ID	Client ID	SubSX	Pri	Prep Dil	EC	TDS	AS MS 13 12	CD MS 13 12	SE MS 13 12	Dilution
23	L36360-10	RC-28V1(37-48)			1			✓	✓	✓	1
24	L36360-11	RC-40V1(22-37)			1			✓	✓	✓	1
25	WG421213CCV2	MS170322-4			1			✓	✓	✓	1
26	WG421213CCB2	NONE			1			✓	✓	✓	1
27	L36360-12	RC-40V1(22-37) DUPLI			1			✓	✓	✓	1
28	WG421213CCV3	MS170322-4			1			✓	✓	✓	1
29	WG421213CCB3	NONE			1			✓	✓	✓	1

Sample	Login Comments
L36360-01	ZIPLOCK || Delivered to soils.
L36360-01MS	ICPMS Spike
L36360-01MSD	ICPMS Spike
L36360-02	ZIPLOCK || Delivered to soils.
L36360-03	ZIPLOCK || Delivered to soils.
L36360-04	ZIPLOCK || Delivered to soils.
L36360-05	ZIPLOCK || Delivered to soils.
L36360-06	ZIPLOCK || Delivered to soils.
L36360-07	ZIPLOCK || Delivered to soils.
L36360-08	ZIPLOCK || Delivered to soils.
L36360-09	ZIPLOCK || Delivered to soils.
L36360-10	ZIPLOCK || Delivered to soils.
L36360-11	ZIPLOCK || Delivered to soils.
L36360-12	ZIPLOCK || Delivered to soils.
WG421039LFB	ICPMS LFB

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
ICPMS DATA REVIEW CHECKLIST

AREV: MFM
Date: 4/17/17

SREV: [signature]
Date: 4/17/17

Workgroup: 421213
Sample Type: 1312
Analysis Date: 4/14/17
Analyst: MFM

	Yes	No	N/A
1) Is the instrument ID on the bench sheet correct?	✓		
2) Has a passing method tune been performed within 24 hours?	✓		
3) Was the low calibration point dropped? If yes, notify PM of change to PQLs.		✓	
4) Is the linear regression ≥ 0.995 for the analytes of interest?	✓		
5) Was the PQV standard analyzed & evaluated for DW samples ? (Fail in LIMS if no DW sxs in WG.)			✓
6) Do the dilution factors on the benchsheet match the sequence in the raw data?			✓
7) Is any sample analyzed on dilution appropriately "D" qualified (not required for o-cal, EC, TDS)?			✓
8) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?			✓
9) Are the % Recoveries of the internal standards within the method limits?	✓		
10) Are all of the QC critera listed in LIMS within specified limits?		✓	
11) Are all samples requiring re-analysis / re-digestion at REDO / REDX status?			✓
12) Are all errors properly crossed out (i.e. single-line, dated & initialed)?	✓		
13) Is a current standard/reagent form attached to the workgroup?	✓		
14) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

For any of the items listed above that are checked "No" state the corrective action/explanation below.

QC/Sample ID	Analytical Problem	Corrective action
DUP	As, Cd RPD ↑	RA
SDL	As	ZG

Calibration Standards

6020/200.8 Stock #1: MS170322-1 SCN
6020/200.8 Stock #2: MS170322-2 SCN
6020/200.8 Stock #3: MS170322-3 SCN

PQV STD: MS170302-4 SCN
Exp. 6/2/2017

INT STD: MS160923-1 SCN
Exp. 8/25/2017

Nitric Acid: 52883 PCN

Hydrochloric Acid: 52396 PCN

VERIFIED: MFM 4/14/17

Calibration Coefficients

Sample Name: ICV
Date Acquired: Apr 14 2017 05:47 pm
Acq. Method: ACZ.M
Current Method Path: c:\ICPCHEM\1\DATA\wg421213.b\
Calibration Path: C:\ICPCHEM\1\DATA\wg421213.b\

Element Name	Mass	Calibration Corr Coef	Tune Step	IS Ref
Be	9	0.9997	3	6
B	11	0.9998	3	6
Al	27	1.0000	3	72
V	51	0.9999	2	45
Cr	52	1.0000	2	45
Mn	55	0.9999	3	72
Fe	56	1.0000	1	45
Co	59	1.0000	3	72
Ni	60	0.9999	2	45
Cu	63	1.0000	2	45
Zn	66	0.9999	3	72
As	75	1.0000	2	45
Se	78	1.0000	1	45
Mo	98	1.0000	3	115
Ag	107	1.0000	3	115
Cd	111	1.0000	3	115
Sn	118	1.0000	3	115
Sb	121	1.0000	3	115
Te	125	1.0000	3	115
Cs	133	0.9999	3	115
Ba	137	0.9999	3	115
Tl	205	0.9999	3	209
Pb	208	0.9999	3	209
Th	232	0.9999	3	209
U	238	0.9999	3	209

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG421213

Date Reported: 17-Apr-17
Run ID: R1523613
Date Analyzed: 14-Apr-17
ICAL Workgroup:
Instrument ID: ICPMS4

WG421213ICV

Tag:

Measured: 4/14/2017 5:47:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.05038	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.05083	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	102	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.0514	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	103	1		%	++	0.0001	0.0003			

WG421213ICB

Tag:

Measured: 4/14/2017 5:50:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			

WG421213ICSA

Tag:

Measured: 4/14/2017 5:53:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			

WG421213ICSAB

Tag:

Measured: 4/14/2017 5:56:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.01951	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	97	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.01948	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	97	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.01926	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	96	1		%	++	0.0001	0.0003			

WG421039PBS

Tag:

Measured: 4/14/2017 6:03:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			

WG421039LFB

Tag: Measured: 4/14/2017 6:06:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.05039	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.05002	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	100	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.05036	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	101	1		%	++	0.0001	0.0003			

L36360-01

Tag: Measured: 4/14/2017 6:09:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0016	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312	.0001	1	B	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0051	1		mg/L	++	0.0001	0.0003		TA	

L36360-01MS

Tag: Measured: 4/14/2017 6:12:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.0537	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	104	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.0511	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	102	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.05527	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	100	1		%	++	0.0001	0.0003			

L36360-01MSD

Tag: Measured: 4/14/2017 6:15:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.05213	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	101	1		%	++	0.0002	0.001			
SREV	ARSENIC	RPD	3	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.04953	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	99	1		%	++	0.0001	0.0005			
SREV	CADMIUM	RPD	3	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.05475	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	99	1		%	++	0.0001	0.0003			
SREV	SELENIUM	RPD	1	1		%	++	0.0001	0.0003			

L36360-01DUP

Tag: Measured: 4/14/2017 6:18:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.00199	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	RPD	22	1		%	ALRT	0.0002	0.001		RA	
SREV	CADMIUM	FOUND	0.00027	1	B	mg/L	++	0.0001	0.0005			
SREV	CADMIUM	RPD	92	1	B	%	ALRT	0.0001	0.0005		RA	
SREV	SELENIUM	FOUND	0.00442	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	RPD	14	1		%	++	0.0001	0.0003			

L36360-02

Tag: Measured: 4/14/2017 6:21:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0016	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0003		TA	

L36360-03

Tag: Measured: 4/14/2017 6:24:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0014	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0003		TA	

L36360-04

Tag: Measured: 4/14/2017 6:27:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0005	1	B	mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0089	1		mg/L	++	0.0001	0.0003		TA	

L36360-05

Tag: Measured: 4/14/2017 6:30:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0015	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0003		TA	

WG421213CCV1

Tag: Measured: 4/14/2017 6:33:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.09939	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	99	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.1027	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	103	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.2527	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	101	1		%	++	0.0001	0.0003			

WG421213CCB1

Tag: Measured: 4/14/2017 6:36:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			

L36360-05SDL

Tag: Measured: 4/14/2017 6:39:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	D	33	1	B	%	ALRT	0.0002	0.001		ZG	
SREV	ARSENIC	FOUND	0.0002	1	B	mg/L	++	0.0002	0.001			
SREV	ARSENIC	REG	0.001	1	B	mg/L	++	0.0002	0.001			
SREV	CADMIUM	D		1	U	%	++	0.0001	0.0005			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REG	0	1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	D		1	U	%	++	0.0001	0.0003			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REG	0	1	U	mg/L	++	0.0001	0.0003			

L36360-06

Tag: Measured: 4/14/2017 6:42:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0014	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0002	1	B	mg/L	++	0.0001	0.0003		TA	

L36360-07

Tag: Measured: 4/14/2017 6:46:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0015	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0006	1		mg/L	++	0.0001	0.0003		TA	

L36360-08

Tag: Measured: 4/14/2017 6:49:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.001	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0011	1		mg/L	++	0.0001	0.0003		TA	

L36360-09

Tag: Measured: 4/14/2017 6:52:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0015	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0091	1		mg/L	++	0.0001	0.0003		TA	

L36360-10

Tag: Measured: 4/14/2017 6:55:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0007	1	B	mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0006	1		mg/L	++	0.0001	0.0003		TA	

L36360-11

Tag: Measured: 4/14/2017 6:58:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0027	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0022	1		mg/L	++	0.0001	0.0003		TA	

L36360-12

Tag: Measured: 4/14/2017 7:01:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	-MS-1312	.0023	1		mg/L	++	0.0002	0.001		RA ZG	
SREV	CADMIUM	-MS-1312		1	U	mg/L	++	0.0001	0.0005		RA	
SREV	SELENIUM	-MS-1312	.0016	1		mg/L	++	0.0001	0.0003		TA	

WG421213CCV2

Tag: Measured: 4/14/2017 7:04:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND	0.1007	1		mg/L	++	0.0002	0.001			
SREV	ARSENIC	REC	100	1		%	++	0.0002	0.001			
SREV	CADMIUM	FOUND	0.1008	1		mg/L	++	0.0001	0.0005			
SREV	CADMIUM	REC	101	1		%	++	0.0001	0.0005			
SREV	SELENIUM	FOUND	0.2503	1		mg/L	++	0.0001	0.0003			
SREV	SELENIUM	REC	100	1		%	++	0.0001	0.0003			

WG421213CCB2

Tag: Measured: 4/14/2017 7:07:00 PM

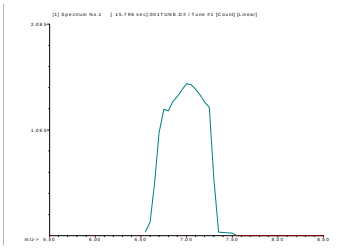
Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	ARSENIC	FOUND		1	U	mg/L	++	0.0002	0.001			
SREV	CADMIUM	FOUND		1	U	mg/L	++	0.0001	0.0005			
SREV	SELENIUM	FOUND		1	U	mg/L	++	0.0001	0.0003			

6020 QC Tune Report

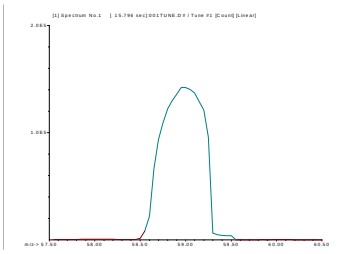
Data File: C:\ICPCHEM\1\DATA\170414at.b\001TUNE.D\001TUNE.D#
Date Acquired: Apr 14 2017 10:16 am
Acq. Method: TN6020.M
Operator: pmc
Sample Name: 6020 Tune
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

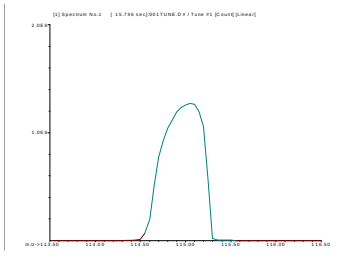
Element	Actual	Required	Flag
7 Li	2.68	5.00	
59 Co	1.63	5.00	
115 In	1.19	5.00	
205 Tl	1.17	5.00	



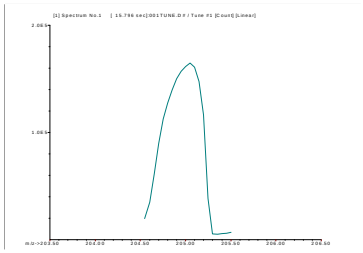
7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.00
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



115 In
Mass Calib.
Actual: 115.05
Required: 114.90 - 115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



205 Tl
Mass Calib.
Actual: 205.00
Required: 204.90 - 205.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\001CAL
Date Acquired: Apr 14 2017 05:26 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:28 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	3349646.00	A	84490.00	2.52
9	Be	58.89	P	1.93	3.27
11	B	28926.88	P	265.60	0.92
27	Al	47564.66	P	606.40	1.27
45	Sc	4100473.00	A	56530.00	1.38
45	Sc	794687.38	A	15280.00	1.92
45	Sc	11063610.00	A	26440.00	0.24
51	V	3113.76	P	126.00	4.05
52	Cr	690.04	P	116.80	16.93
55	Mn	11507.92	P	185.70	1.61
56	Fe	5558.36	P	27.25	0.49
59	Co	234.45	P	34.70	14.80
60	Ni	64.45	P	5.09	7.90
63	Cu	1387.89	P	44.02	3.17
66	Zn	4508.59	P	40.21	0.89
72	Ge	1128645.00	A	19560.00	1.73
72	Ge	376640.69	P	5724.00	1.52
72	Ge	2671756.00	A	37380.00	1.40
74	Ge	1603778.00	A	14100.00	0.88
74	Ge	556248.81	P	8822.00	1.59
74	Ge	3667260.00	A	38910.00	1.06
75	As	96.67	P	17.64	18.25
78	Se	11.89	P	0.69	5.84
98	Mo	315.01	P	43.39	13.77
99	(Mo)		P		
106	Cd		P		
107	Ag	341.13	P	45.26	13.27
108	Cd		P		
111	Cd	19.18	P	10.33	53.87
115	In	5738681.00	A	6373.00	0.11
115	In	1662482.00	A	42410.00	2.55
115	In	10149750.00	A	82580.00	0.81
118	Sn	4903.19	P	207.30	4.23
121	Sb	2127.97	P	146.80	6.90
125	Te	16.67	P	12.02	72.12
133	Cs	411.13	P	48.35	11.76
137	Ba	131.12	P	6.94	5.29
159	Tb	14419740.00	A	90850.00	0.63
205	Tl	272.23	P	57.19	21.01
206	(Pb)		P		
207	(Pb)		P		
208	Pb	774.48	P	68.34	8.82
209	Bi	17766180.00	A	131200.00	0.74
232	Th	33384.66	P	1708.00	5.12
238	U	375.57	P	36.57	9.74

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\002CAL
Date Acquired: Apr 14 2017 05:29 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:28 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	3268766.00	A	22500.00	0.69
9	Be	40.00	P	14.53	36.32
11	B	27762.54	P	270.60	0.97
27	Al	46938.33	P	1224.00	2.61
45	Sc	3948686.00	A	55930.00	1.42
45	Sc	798498.63	A	8428.00	1.06
45	Sc	10896230.00	A	139700.00	1.28
51	V	2954.83	P	30.25	1.02
52	Cr	692.26	P	54.30	7.84
55	Mn	11461.24	P	102.10	0.89
56	Fe	5072.41	P	50.92	1.00
59	Co	232.23	P	23.65	10.18
60	Ni	47.78	P	15.03	31.46
63	Cu	1353.44	P	70.56	5.21
66	Zn	4393.00	P	232.60	5.29
72	Ge	1087583.00	A	12140.00	1.12
72	Ge	371705.81	P	1839.00	0.49
72	Ge	2643131.00	A	9063.00	0.34
74	Ge	1551250.00	A	1688.00	0.11
74	Ge	553697.38	P	2811.00	0.51
74	Ge	3625644.00	A	22160.00	0.61
75	As	98.89	P	24.57	24.85
78	Se	13.22	P	1.71	12.93
98	Mo	237.25	P	12.63	5.32
99	(Mo)		P		
106	Cd		P		
107	Ag	247.79	P	28.35	11.44
108	Cd		P		
111	Cd	22.29	P	21.95	98.47
115	In	5628345.00	A	51620.00	0.92
115	In	1637148.00	A	5093.00	0.31
115	In	9940450.00	A	127300.00	1.28
118	Sn	2953.73	P	276.60	9.36
121	Sb	922.82	P	93.94	10.18
125	Te	20.00	P	13.33	66.65
133	Cs	308.90	P	13.47	4.36
137	Ba	121.12	P	16.78	13.85
159	Tb	14178570.00	A	122400.00	0.86
205	Tl	167.78	P	25.46	15.17
206	(Pb)		P		
207	(Pb)		P		
208	Pb	588.92	P	8.39	1.42
209	Bi	17571930.00	A	40520.00	0.23
232	Th	19029.29	P	478.50	2.51
238	U	141.12	P	35.01	24.81

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\003CAL
Date Acquired: Apr 14 2017 05:32 pm
Operator:
Sample Name: Calblk
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:31 pm
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	3287783.00	A	33510.00	1.02
9	Be	56.67	P	14.53	25.64
11	B	27786.00	P	304.20	1.09
27	Al	46543.76	P	589.00	1.27
45	Sc	3997306.00	A	40480.00	1.01
45	Sc	789072.31	A	9287.00	1.18
45	Sc	10993290.00	A	115000.00	1.05
51	V	2918.15	P	100.20	3.43
52	Cr	704.48	P	28.35	4.02
55	Mn	11504.58	P	73.62	0.64
56	Fe	5224.91	P	22.20	0.42
59	Co	204.45	P	35.95	17.58
60	Ni	37.78	P	10.71	28.35
63	Cu	1253.43	P	67.42	5.38
66	Zn	4031.77	P	78.91	1.96
72	Ge	1091377.00	A	2094.00	0.19
72	Ge	362817.09	P	6554.00	1.81
72	Ge	2630124.00	A	41560.00	1.58
74	Ge	1537843.00	A	9077.00	0.59
74	Ge	541514.88	P	5688.00	1.05
74	Ge	3611946.00	A	36310.00	1.01
75	As	107.78	P	21.69	20.12
78	Se	12.44	P	0.51	4.09
98	Mo	208.66	P	10.89	5.22
99	(Mo)		P		
106	Cd		P		
107	Ag	254.46	P	15.40	6.05
108	Cd		P		
111	Cd	29.46	P	7.59	25.75
115	In	5666378.00	A	45240.00	0.80
115	In	1602760.00	A	6548.00	0.41
115	In	9901388.00	A	24990.00	0.25
118	Sn	2283.60	P	149.70	6.56
121	Sb	625.02	P	82.52	13.20
125	Te	17.78	P	5.09	28.64
133	Cs	257.79	P	18.36	7.12
137	Ba	103.34	P	14.53	14.06
159	Tb	14162890.00	A	89000.00	0.63
205	Tl	108.89	P	7.70	7.07
206	(Pb)		P		
207	(Pb)		P		
208	Pb	540.03	P	42.56	7.88
209	Bi	17687440.00	A	256900.00	1.45
232	Th	12926.55	P	223.60	1.73
238	U	116.67	P	3.33	2.86

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\004CALS.D\004CALS.D#
Date Acquired: Apr 14 2017 05:35 pm
Operator:
Sample Name: PQV Std
Misc Info:
Vial Number: 1303
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:34 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	3227905.00	A	53490.00	1.66
9 Be	1273.43	P	55.68	4.37
11 B	30204.86	P	594.40	1.97
27 Al	126983.00	P	3394.00	2.67
45 Sc	4019884.00	A	59700.00	1.49
45 Sc	780720.00	A	4492.00	0.58
45 Sc	10783160.00	A	93950.00	0.87
51 V	7090.71	P	61.97	0.87
52 Cr	8917.27	P	169.60	1.90
55 Mn	74768.43	P	2272.00	3.04
56 Fe	97228.77	P	716.10	0.74
59 Co	5416.68	P	189.70	3.50
60 Ni	4815.36	P	107.70	2.24
63 Cu	11966.11	P	123.70	1.03
66 Zn	20291.78	P	954.00	4.70
72 Ge	1078528.00	A	11490.00	1.07
72 Ge	363818.31	P	5296.00	1.46
72 Ge	2609972.00	A	18300.00	0.70
74 Ge	1532105.00	A	24210.00	1.58
74 Ge	538265.38	P	7332.00	1.36
74 Ge	3612587.00	A	30850.00	0.85
75 As	651.15	P	38.64	5.93
78 Se	81.33	P	3.33	4.10
98 Mo	23327.85	P	1087.00	4.66
99 (Mo)		P		
106 Cd		P		
107 Ag	3950.66	P	43.58	1.10
108 Cd		P		
111 Cd	1727.42	P	75.14	4.35
115 In	5641704.00	A	38050.00	0.67
115 In	1591778.00	A	33310.00	2.09
115 In	9849168.00	A	160400.00	1.63
118 Sn	6831.80	P	220.40	3.23
121 Sb	27234.15	P	644.50	2.37
125 Te	2901.50	P	238.70	8.23
133 Cs	37978.87	P	47.31	0.12
137 Ba	13092.94	P	402.10	3.07
159 Tb	14209430.00	A	176600.00	1.24
205 Tl	14511.35	P	382.00	2.63
206 (Pb)		P		
207 (Pb)		P		
208 Pb	21293.84	P	525.20	2.47
209 Bi	17498530.00	A	135600.00	0.77
232 Th	174670.41	P	4579.00	2.62
238 U	21804.65	P	329.00	1.51

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3227904.80	1.66	3287782.80	98.2	59.5 - 120.4	
45 Sc	4019883.80	1.49	3997305.80	100.6	59.5 - 120.4	
45 Sc	780720.06	0.58	789072.31	98.9	59.5 - 120.4	
45 Sc	10783159.00	0.87	10993292.00	98.1	59.5 - 120.4	
72 Ge	1078527.80	1.07	1091377.40	98.8	59.5 - 120.4	
72 Ge	363818.31	1.46	362817.06	100.3	59.5 - 120.4	
72 Ge	2609971.80	0.70	2630124.00	99.2	59.5 - 120.4	
74 Ge	1532104.80	1.58	1537842.60	99.6	59.5 - 120.4	
74 Ge	538265.38	1.36	541514.94	99.4	59.5 - 120.4	
74 Ge	3612586.50	0.85	3611946.30	100.0	59.5 - 120.4	
115 In	5641704.50	0.67	5666378.00	99.6	59.5 - 120.4	
115 In	1591778.00	2.09	1602759.80	99.3	59.5 - 120.4	
115 In	9849168.00	1.63	9901388.00	99.5	59.5 - 120.4	
159 Tb	14209435.00	1.24	14162891.00	100.3	59.5 - 120.4	
209 Bi	17498532.00	0.77	17687444.00	98.9	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\005CALS.D\005CALS.D#
Date Acquired: Apr 14 2017 05:38 pm
Operator:
Sample Name: Level 3 Std
Misc Info:
Vial Number: 1304
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:37 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	3260348.00	A	32200.00	0.99
9 Be	99383.64	P	647.60	0.65
11 B	33357.81	P	215.90	0.65
27 Al	1779306.00	A	9351.00	0.53
45 Sc	3964309.00	A	18230.00	0.46
45 Sc	783618.50	A	4404.00	0.56
45 Sc	10952000.00	A	118400.00	1.08
51 V	77577.30	P	348.70	0.45
52 Cr	85266.38	P	633.30	0.74
55 Mn	539633.38	P	11680.00	2.16
56 Fe	980089.69	A	10300.00	1.05
59 Co	439297.69	P	10670.00	2.43
60 Ni	80812.62	P	1056.00	1.31
63 Cu	218483.30	P	1535.00	0.70
66 Zn	349499.41	P	8515.00	2.44
72 Ge	1077494.00	A	23530.00	2.18
72 Ge	366296.41	P	2375.00	0.65
72 Ge	2625649.00	A	35830.00	1.36
74 Ge	1525160.00	A	30410.00	1.99
74 Ge	538129.19	P	6418.00	1.19
74 Ge	3631065.00	A	43490.00	1.20
75 As	11595.87	P	180.00	1.55
78 Se	14909.91	P	64.49	0.43
98 Mo	192631.20	P	2844.00	1.48
99 (Mo)		P		
106 Cd		P		
107 Ag	79620.86	P	852.30	1.07
108 Cd		P		
111 Cd	70841.09	P	1276.00	1.80
115 In	5609564.00	A	76470.00	1.36
115 In	1594666.00	A	13730.00	0.86
115 In	9842097.00	A	101400.00	1.03
118 Sn	195952.80	P	3509.00	1.79
121 Sb	31947.39	P	831.30	2.60
125 Te	11699.42	P	171.20	1.46
133 Cs	783504.00	P	14330.00	1.83
137 Ba	250170.09	P	4165.00	1.66
159 Tb	14243470.00	A	132700.00	0.93
205 Tl	618085.69	P	12680.00	2.05
206 (Pb)		P		
207 (Pb)		P		
208 Pb	2232351.00	A	38850.00	1.74
209 Bi	17656740.00	A	151600.00	0.86
232 Th	782971.88	P	21710.00	2.77
238 U	948072.81	A	23790.00	2.51

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3260348.00	0.99	3287782.80	99.2	59.5 - 120.4	
45 Sc	3964309.00	0.46	3997305.80	99.2	59.5 - 120.4	
45 Sc	783618.50	0.56	789072.31	99.3	59.5 - 120.4	
45 Sc	10951996.00	1.08	10993292.00	99.6	59.5 - 120.4	
72 Ge	1077494.40	2.18	1091377.40	98.7	59.5 - 120.4	
72 Ge	366296.41	0.65	362817.06	101.0	59.5 - 120.4	
72 Ge	2625649.30	1.36	2630124.00	99.8	59.5 - 120.4	
74 Ge	1525160.50	1.99	1537842.60	99.2	59.5 - 120.4	
74 Ge	538129.19	1.19	541514.94	99.4	59.5 - 120.4	
74 Ge	3631065.30	1.20	3611946.30	100.5	59.5 - 120.4	
115 In	5609563.50	1.36	5666378.00	99.0	59.5 - 120.4	
115 In	1594665.90	0.86	1602759.80	99.5	59.5 - 120.4	
115 In	9842097.00	1.03	9901388.00	99.4	59.5 - 120.4	
159 Tb	14243466.00	0.93	14162891.00	100.6	59.5 - 120.4	
209 Bi	17656736.00	0.86	17687444.00	99.8	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\006CALS.D\006CALS.D#
Date Acquired: Apr 14 2017 05:42 pm
Operator:
Sample Name: Level 4 Std
Misc Info:
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:40 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	3210209.00	A	41880.00	1.30
9 Be	486320.59	P	5101.00	1.05
11 B	56891.00	P	386.00	0.68
27 Al	8175332.00	A	167800.00	2.05
45 Sc	4066716.00	A	37980.00	0.93
45 Sc	762228.69	A	16450.00	2.16
45 Sc	10773220.00	A	121300.00	1.13
51 V	366106.09	P	5247.00	1.43
52 Cr	409290.81	P	8900.00	2.17
55 Mn	2658759.00	A	51480.00	1.94
56 Fe	4582289.00	A	33770.00	0.74
59 Co	2186295.00	A	44070.00	2.02
60 Ni	392002.59	P	5577.00	1.42
63 Cu	1085406.00	A	18880.00	1.74
66 Zn	1743822.00	A	46380.00	2.66
72 Ge	1093460.00	A	6503.00	0.59
72 Ge	357540.31	P	6867.00	1.92
72 Ge	2590457.00	A	10780.00	0.42
74 Ge	1548309.00	A	8612.00	0.56
74 Ge	532472.63	P	9764.00	1.83
74 Ge	3583705.00	A	26450.00	0.74
75 As	54175.49	P	1222.00	2.26
78 Se	72754.54	P	739.00	1.02
98 Mo	963735.13	A	17140.00	1.78
99 (Mo)		P		
106 Cd		P		
107 Ag	399483.81	P	6126.00	1.53
108 Cd		P		
111 Cd	347986.00	P	6677.00	1.92
115 In	5644259.00	A	66530.00	1.18
115 In	1565197.00	A	24160.00	1.54
115 In	9744955.00	A	76770.00	0.79
118 Sn	1005655.00	A	20870.00	2.08
121 Sb	154619.09	P	2937.00	1.90
125 Te	57049.80	P	935.40	1.64
133 Cs	3900229.00	A	66830.00	1.71
137 Ba	1288877.00	A	18200.00	1.41
159 Tb	14128320.00	A	55930.00	0.40
205 Tl	3226370.00	A	6347.00	0.20
206 (Pb)		A		
207 (Pb)		A		
208 Pb	11028940.00	A	70950.00	0.64
209 Bi	17548220.00	A	179400.00	1.02
232 Th	4488665.00	A	13410.00	0.30
238 U	4618644.00	A	18190.00	0.39

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3210209.00	1.30	3287782.80	97.6	59.5 - 120.4	
45 Sc	4066716.30	0.93	3997305.80	101.7	59.5 - 120.4	
45 Sc	762228.75	2.16	789072.31	96.6	59.5 - 120.4	
45 Sc	10773216.00	1.13	10993292.00	98.0	59.5 - 120.4	
72 Ge	1093460.30	0.59	1091377.40	100.2	59.5 - 120.4	
72 Ge	357540.34	1.92	362817.06	98.5	59.5 - 120.4	
72 Ge	2590457.00	0.42	2630124.00	98.5	59.5 - 120.4	
74 Ge	1548308.50	0.56	1537842.60	100.7	59.5 - 120.4	
74 Ge	532472.63	1.83	541514.94	98.3	59.5 - 120.4	
74 Ge	3583705.30	0.74	3611946.30	99.2	59.5 - 120.4	
115 In	5644259.50	1.18	5666378.00	99.6	59.5 - 120.4	
115 In	1565197.40	1.54	1602759.80	97.7	59.5 - 120.4	
115 In	9744955.00	0.79	9901388.00	98.4	59.5 - 120.4	
159 Tb	14128325.00	0.40	14162891.00	99.8	59.5 - 120.4	
209 Bi	17548220.00	1.02	17687444.00	99.2	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\007CALS.D\007CALS.D#
Date Acquired: Apr 14 2017 05:44 pm
Operator:
Sample Name: Level 5 Std
Misc Info:
Vial Number: 1306
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:43 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	3179769.00	A	74820.00	2.35
9 Be	1009947.00	A	4097.00	0.41
11 B	88240.51	P	255.20	0.29
27 Al	16420730.00	A	230100.00	1.40
45 Sc	4027338.00	A	54290.00	1.35
45 Sc	768354.50	A	5976.00	0.78
45 Sc	11023690.00	A	208700.00	1.89
51 V	714844.38	A	1762.00	0.25
52 Cr	811884.31	A	9515.00	1.17
55 Mn	5210893.00	A	92530.00	1.78
56 Fe	9103648.00	A	16300.00	0.18
59 Co	4375020.00	A	102300.00	2.34
60 Ni	774732.50	M	9226.00	1.19
63 Cu	2153265.00	A	27070.00	1.26
66 Zn	3443755.00	A	78820.00	2.29
72 Ge	1091916.00	A	9142.00	0.84
72 Ge	357458.00	P	4730.00	1.32
72 Ge	2617257.00	A	35690.00	1.36
74 Ge	1564334.00	A	8341.00	0.53
74 Ge	534904.00	P	5857.00	1.10
74 Ge	3650786.00	A	66220.00	1.81
75 As	108462.00	P	995.80	0.92
78 Se	145968.70	P	974.70	0.67
98 Mo	1944726.00	A	40670.00	2.09
99 (Mo)		P		
106 Cd		P		
107 Ag	817815.69	M	29330.00	3.59
108 Cd		P		
111 Cd	688535.63	P	5768.00	0.84
115 In	5681195.00	A	33810.00	0.60
115 In	1589220.00	A	23380.00	1.47
115 In	9828145.00	A	118800.00	1.21
118 Sn	2016059.00	A	37720.00	1.87
121 Sb	310656.50	P	5239.00	1.69
125 Te	114697.80	P	1199.00	1.05
133 Cs	7710001.00	A	172100.00	2.23
137 Ba	2550059.00	A	23800.00	0.93
159 Tb	14226300.00	A	188200.00	1.32
205 Tl	6371145.00	A	138800.00	2.18
206 (Pb)		A		
207 (Pb)		A		
208 Pb	21808530.00	A	255700.00	1.17
209 Bi	17809140.00	A	463200.00	2.60
232 Th	9063262.00	A	229000.00	2.53
238 U	9178125.00	A	197400.00	2.15

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3179769.00	2.35	3287782.80	96.7	59.5 - 120.4	
45 Sc	4027337.80	1.35	3997305.80	100.8	59.5 - 120.4	
45 Sc	768354.50	0.78	789072.31	97.4	59.5 - 120.4	
45 Sc	11023687.00	1.89	10993292.00	100.3	59.5 - 120.4	
72 Ge	1091915.90	0.84	1091377.40	100.0	59.5 - 120.4	
72 Ge	357458.03	1.32	362817.06	98.5	59.5 - 120.4	
72 Ge	2617257.50	1.36	2630124.00	99.5	59.5 - 120.4	
74 Ge	1564333.90	0.53	1537842.60	101.7	59.5 - 120.4	
74 Ge	534904.00	1.10	541514.94	98.8	59.5 - 120.4	
74 Ge	3650785.80	1.81	3611946.30	101.1	59.5 - 120.4	
115 In	5681195.50	0.60	5666378.00	100.3	59.5 - 120.4	
115 In	1589220.50	1.47	1602759.80	99.2	59.5 - 120.4	
115 In	9828145.00	1.21	9901388.00	99.3	59.5 - 120.4	
159 Tb	14226301.00	1.32	14162891.00	100.4	59.5 - 120.4	
209 Bi	17809144.00	2.60	17687444.00	100.7	59.5 - 120.4	

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Initial Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\008_QCS.D\008_QCS.D#
Date Acquired: Apr 14 2017 05:47 pm
Operator:
Sample Name: ICV
Misc Info:
Vial Number: 1307
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:46 pm
Sample Type: QCS
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	47.230	2.72	50.00	94.5	89 - 110	
11 B	6	3	20.310	3.86	20.00	101.6	89 - 110	
27 Al	72	3	105.100	2.57	100.00	105.1	89 - 110	
51 V	45	2	49.290	0.75	50.00	98.6	89 - 110	
52 Cr	45	2	51.170	0.91	50.00	102.3	89 - 110	
55 Mn	72	3	52.470	2.51	50.00	104.9	89 - 110	
56 Fe	45	1	105.300	1.02	100.00	105.3	89 - 110	
59 Co	72	3	52.500	2.99	50.00	105.0	89 - 110	
60 Ni	45	2	53.000	0.87	50.00	106.0	89 - 110	
63 Cu	45	2	49.990	1.38	50.00	100.0	89 - 110	
66 Zn	72	3	49.830	2.12	50.00	99.7	89 - 110	
75 As	45	2	50.380	1.14	50.00	100.8	89 - 110	
78 Se	45	1	51.400	1.38	50.00	102.8	89 - 110	
98 Mo	115	3	18.710	2.25	20.00	93.6	89 - 110	
107 Ag	115	3	19.860	2.23	20.00	99.3	89 - 110	
111 Cd	115	3	50.830	2.73	50.00	101.7	89 - 110	
118 Sn	115	3	40.950	2.73	50.00	81.9	89 - 110	Fail
121 Sb	115	3	18.620	2.79	20.00	93.1	89 - 110	
125 Te	115	3	50.090	2.80	50.00	100.2	89 - 110	
133 Cs	115	3	51.140	2.48	50.00	102.3	89 - 110	
137 Ba	115	3	48.280	3.47	50.00	96.6	89 - 110	
205 Tl	209	3	54.400	1.71	50.00	108.8	89 - 110	
208 Pb	209	3	51.400	2.14	50.00	102.8	89 - 110	
232 Th	209	3	52.280	4.49	50.00	104.6	89 - 110	
238 U	209	3	51.690	2.91	50.00	103.4	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3217503	1.96	3287783	97.9	60 - 120	
45 Sc	1	4046880	0.85	3997306	101.2	60 - 120	
45 Sc	2	764926	1.73	789072	96.9	60 - 120	
45 Sc	3	10805002	4.85	10993292	98.3	60 - 120	
72 Ge	1	1099974	0.50	1091377	100.8	60 - 120	
72 Ge	2	358506	0.92	362817	98.8	60 - 120	
72 Ge	3	2574223	2.63	2630124	97.9	60 - 120	
74 Ge	1	1561489	0.34	1537843	101.5	60 - 120	
74 Ge	2	535551	0.57	541515	98.9	60 - 120	
74 Ge	3	3598419	2.83	3611946	99.6	60 - 120	
115 In	1	5743970	0.77	5666378	101.4	60 - 120	
115 In	2	1574767	0.79	1602760	98.3	60 - 120	
115 In	3	9842731	2.57	9901388	99.4	60 - 120	
159 Tb	3	14065083	3.17	14162891	99.3	60 - 120	
209 Bi	3	17472984	2.22	17687444	98.8	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

1 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\009_CCB.D\009_CCB.D#
Date Acquired: Apr 14 2017 05:50 pm
Operator:
Sample Name: ICB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:46 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.014 ppb	49.71	0.150	
11 B	6	3	-0.137 ppb	198.83	1.500	
27 Al	72	3	0.026 ppb	59.18	3.000	
51 V	45	2	-0.195 ppb	9.07	0.600	
52 Cr	45	2	0.002 ppb	370.12	1.500	
55 Mn	72	3	0.001 ppb	1010.30	1.500	
56 Fe	45	1	0.027 ppb	178.83	12.000	
59 Co	72	3	0.008 ppb	15.64	0.150	
60 Ni	45	2	0.022 ppb	54.81	1.800	
63 Cu	45	2	0.007 ppb	104.38	1.500	
66 Zn	72	3	-0.012 ppb	155.37	6.000	
75 As	45	2	-0.029 ppb	126.15	0.600	
78 Se	45	1	0.027 ppb	33.37	0.300	
98 Mo	115	3	0.019 ppb	18.39	1.500	
107 Ag	115	3	0.015 ppb	12.98	0.150	
111 Cd	115	3	0.006 ppb	198.92	0.300	
118 Sn	115	3	0.368 ppb	9.55	0.300	Fail
121 Sb	115	3	0.435 ppb	8.06	1.200	
125 Te	115	3	0.038 ppb	24.20	3.000	
133 Cs	115	3	0.013 ppb	12.35	0.600	
137 Ba	115	3	0.015 ppb	48.69	0.300	
205 Tl	209	3	0.019 ppb	6.72	0.300	
208 Pb	209	3	0.014 ppb	1.66	0.300	
232 Th	209	3	1.656 ppb	1.34	3.000	
238 U	209	3	0.022 ppb	9.05	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3200884	2.38	3287783	97.4	60 - 120	
45 Sc	1	4024443	1.34	3997306	100.7	60 - 120	
45 Sc	2	764536	0.65	789072	96.9	60 - 120	
45 Sc	3	10817256	1.03	10993292	98.4	60 - 120	
72 Ge	1	1095264	0.38	1091377	100.4	60 - 120	
72 Ge	2	355878	1.40	362817	98.1	60 - 120	
72 Ge	3	2598817	1.15	2630124	98.8	60 - 120	
74 Ge	1	1554185	0.76	1537843	101.1	60 - 120	
74 Ge	2	527929	1.74	541515	97.5	60 - 120	
74 Ge	3	3611894	1.81	3611946	100.0	60 - 120	
115 In	1	5664602	1.38	5666378	100.0	60 - 120	
115 In	2	1578252	1.12	1602760	98.5	60 - 120	
115 In	3	9743158	0.24	9901388	98.4	60 - 120	
159 Tb	3	14002606	0.53	14162891	98.9	60 - 120	
209 Bi	3	17302068	0.84	17687444	97.8	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\010_CCB.D\010_CCB.D#
Date Acquired: Apr 14 2017 05:53 pm
Operator:
Sample Name: ICSA
Misc Info:
Vial Number: 2507
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:46 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.006 ppb	77.26	0.150	
11 B	6	3	0.735 ppb	14.01	1.500	
27 Al	72	3	48420.000 ppb	1.57	3.000	Fail
51 V	45	2	-0.457 ppb	6.59	0.600	
52 Cr	45	2	0.214 ppb	15.45	1.500	
55 Mn	72	3	0.754 ppb	4.56	1.500	
56 Fe	45	1	46400.000 ppb	0.64	12.000	Fail
59 Co	72	3	0.201 ppb	3.40	0.150	Fail
60 Ni	45	2	0.208 ppb	6.65	1.800	
63 Cu	45	2	0.151 ppb	4.31	1.500	
66 Zn	72	3	2.483 ppb	0.94	6.000	
75 As	45	2	0.093 ppb	80.52	0.600	
78 Se	45	1	0.049 ppb	18.33	0.300	
98 Mo	115	3	969.400 ppb	3.32	1.500	Fail
107 Ag	115	3	0.070 ppb	3.87	0.150	
111 Cd	115	3	0.037 ppb	129.10	0.300	
118 Sn	115	3	0.191 ppb	3.85	0.300	
121 Sb	115	3	0.281 ppb	3.58	1.200	
125 Te	115	3	0.016 ppb	60.53	3.000	
133 Cs	115	3	0.020 ppb	5.88	0.600	
137 Ba	115	3	0.351 ppb	4.56	0.300	Fail
205 Tl	209	3	0.010 ppb	9.10	0.300	
208 Pb	209	3	0.053 ppb	3.00	0.300	
232 Th	209	3	2.420 ppb	0.32	3.000	
238 U	209	3	0.012 ppb	9.89	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3290688	1.19	3287783	100.1	60 - 120	
45 Sc	1	4134059	1.25	3997306	103.4	60 - 120	
45 Sc	2	810224	2.02	789072	102.7	60 - 120	
45 Sc	3	11252812	1.23	10993292	102.4	60 - 120	
72 Ge	1	1123368	1.22	1091377	102.9	60 - 120	
72 Ge	2	362463	1.51	362817	99.9	60 - 120	
72 Ge	3	2666138	1.20	2630124	101.4	60 - 120	
74 Ge	1	1562561	1.02	1537843	101.6	60 - 120	
74 Ge	2	538499	0.96	541515	99.4	60 - 120	
74 Ge	3	3646890	0.21	3611946	101.0	60 - 120	
115 In	1	5451329	1.21	5666378	96.2	60 - 120	
115 In	2	1520456	1.06	1602760	94.9	60 - 120	
115 In	3	9424701	2.04	9901388	95.2	60 - 120	
159 Tb	3	13805512	1.07	14162891	97.5	60 - 120	
209 Bi	3	16106141	0.50	17687444	91.1	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

5 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

ICS-AB QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\011_ICS.D\011_ICS.D#
Date Acquired: Apr 14 2017 05:56 pm
Acq. Method: ACZ.M
Operator:
Sample Name: ICSAB
Misc Info:
Vial Number: 2508
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: ICSAB
Dilution Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Be	6	3	17.41	2.24	20	87.1	79.5 - 120	
11 B	6	3	9.89	2.22	4	247.3	79.5 - 120	fail
27 Al	72	3	48990.00	0.83	50020	97.9	79.5 - 120	
51 V	45	2	18.80	0.27	20	94.0	79.5 - 120	
52 Cr	45	2	18.45	1.39	20	92.3	79.5 - 120	
55 Mn	72	3	18.92	2.29	20	94.6	79.5 - 120	
56 Fe	45	1	46470.00	1.20	49900	93.1	79.5 - 120	
59 Co	72	3	17.98	2.85	20	89.9	79.5 - 120	
60 Ni	45	2	18.25	0.81	20	91.3	79.5 - 120	
63 Cu	45	2	17.30	2.30	20	86.5	79.5 - 120	
66 Zn	72	3	20.68	1.82	20	103.4	79.5 - 120	
75 As	45	2	19.51	1.43	20	97.6	79.5 - 120	
78 Se	45	1	19.26	0.20	20	96.3	79.5 - 120	
98 Mo	115	3	992.10	2.78	1020	97.3	79.5 - 120	
107 Ag	115	3	8.85	2.46	10	88.5	79.5 - 120	
111 Cd	115	3	19.48	2.00	20	97.4	79.5 - 120	
118 Sn	115	3	18.84	2.01	20	94.2	79.5 - 120	
121 Sb	115	3	10.49	1.58	10	104.9	79.5 - 120	
125 Te	115	3	20.07	3.00	20	100.4	79.5 - 120	
133 Cs	115	3	19.17	2.27	20	95.9	79.5 - 120	
137 Ba	115	3	20.57	2.44	20	102.9	79.5 - 120	
205 Tl	209	3	18.74	2.18	20	93.7	79.5 - 120	
208 Pb	209	3	18.72	2.19	20	93.6	79.5 - 120	
232 Th	209	3	51.70	2.68	20	258.5	79.5 - 120	fail
238 U	209	3	19.09	2.19	20	95.5	79.5 - 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3419385	1.94	3287783	104.0	59.5 - 120	
45 Sc	1	4307507	0.87	3997306	107.8	59.5 - 120	
45 Sc	2	818054	1.03	789072	103.7	59.5 - 120	
45 Sc	3	11749134	0.84	10993292	106.9	59.5 - 120	
72 Ge	1	1160755	0.41	1091377	106.4	59.5 - 120	
72 Ge	2	372959	0.47	362817	102.8	59.5 - 120	
72 Ge	3	2734566	0.91	2630124	104.0	59.5 - 120	
74 Ge	1	1637895	0.90	1537843	106.5	59.5 - 120	
74 Ge	2	543603	0.47	541515	100.4	59.5 - 120	
74 Ge	3	3752655	0.58	3611946	103.9	59.5 - 120	
115 In	1	5529441	0.47	5666378	97.6	59.5 - 120	
115 In	2	1526138	0.55	1602760	95.2	59.5 - 120	
115 In	3	9610203	0.36	9901388	97.1	59.5 - 120	
159 Tb	3	14091916	0.09	14162891	99.5	59.5 - 120	
209 Bi	3	16220788	0.36	17687444	91.7	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\012_CCB.D\012_CCB.D#
Date Acquired: Apr 14 2017 06:00 pm
Operator:
Sample Name: Wash
Misc Info:
Vial Number: 2509
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:46 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	-0.001 ppb	101.93	0.150	
11 B	6	3	-0.702 ppb	13.23	1.500	
27 Al	72	3	6.114 ppb	20.12	3.000	Fail
51 V	45	2	-0.560 ppb	2.15	0.600	
52 Cr	45	2	-0.033 ppb	39.73	1.500	
55 Mn	72	3	0.020 ppb	17.16	1.500	
56 Fe	45	1	9.107 ppb	4.61	12.000	
59 Co	72	3	0.002 ppb	78.87	0.150	
60 Ni	45	2	0.006 ppb	125.64	1.800	
63 Cu	45	2	-0.027 ppb	138.71	1.500	
66 Zn	72	3	1.455 ppb	3.25	6.000	
75 As	45	2	-0.099 ppb	40.87	0.600	
78 Se	45	1	-0.005 ppb	142.67	0.300	
98 Mo	115	3	0.427 ppb	11.16	1.500	
107 Ag	115	3	0.004 ppb	58.68	0.150	
111 Cd	115	3	0.000 ppb	3731.80	0.300	
118 Sn	115	3	0.166 ppb	16.39	0.300	
121 Sb	115	3	0.087 ppb	14.82	1.200	
125 Te	115	3	0.005 ppb	61.00	3.000	
133 Cs	115	3	0.001 ppb	19.23	0.600	
137 Ba	115	3	0.039 ppb	4.81	0.300	
205 Tl	209	3	0.007 ppb	11.60	0.300	
208 Pb	209	3	0.013 ppb	10.20	0.300	
232 Th	209	3	0.262 ppb	18.69	3.000	
238 U	209	3	0.004 ppb	11.12	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3566225	1.01	3287783	108.5	60 - 120	
45 Sc	1	4326980	2.38	3997306	108.2	60 - 120	
45 Sc	2	829010	0.18	789072	105.1	60 - 120	
45 Sc	3	11618978	2.14	10993292	105.7	60 - 120	
72 Ge	1	1186825	1.40	1091377	108.7	60 - 120	
72 Ge	2	383601	0.33	362817	105.7	60 - 120	
72 Ge	3	2745954	0.25	2630124	104.4	60 - 120	
74 Ge	1	1672431	1.91	1537843	108.8	60 - 120	
74 Ge	2	568252	1.01	541515	104.9	60 - 120	
74 Ge	3	3806115	1.17	3611946	105.4	60 - 120	
115 In	1	5977846	1.33	5666378	105.5	60 - 120	
115 In	2	1634074	0.24	1602760	102.0	60 - 120	
115 In	3	10087107	1.29	9901388	101.9	60 - 120	
159 Tb	3	14164978	0.04	14162891	100.0	60 - 120	
209 Bi	3	17379454	1.08	17687444	98.3	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

1 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\013SMPL.D\013SMPL.D#
Date Acquired: Apr 14 2017 06:03 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG421039PBS
Misc Info:
Vial Number: 2207
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.002	0.002	ppb	50.82	200.00	
11 B	6	3	4.169	4.169	ppb	7.53	20.00	
27 Al	72	3	2.422	2.422	ppb	3.62	1000.00	
51 V	45	2	-0.105	-0.105	ppb	26.27	200.00	
52 Cr	45	2	0.112	0.112	ppb	24.84	200.00	
55 Mn	72	3	0.559	0.559	ppb	0.68	200.00	
56 Fe	45	1	3.844	3.844	ppb	2.17	1000.00	
59 Co	72	3	0.005	0.005	ppb	53.10	200.00	
60 Ni	45	2	0.077	0.077	ppb	23.90	500.00	
63 Cu	45	2	0.547	0.547	ppb	3.55	500.00	
66 Zn	72	3	2.542	2.542	ppb	2.16	1000.00	
75 As	45	2	0.041	0.041	ppb	209.86	200.00	
78 Se	45	1	0.019	0.019	ppb	32.74	500.00	
98 Mo	115	3	0.372	0.372	ppb	1.76	200.00	
107 Ag	115	3	0.015	0.015	ppb	6.96	50.00	
111 Cd	115	3	0.003	0.003	ppb	160.22	200.00	
118 Sn	115	3	0.039	0.039	ppb	42.20	200.00	
121 Sb	115	3	0.055	0.055	ppb	11.64	25.00	
125 Te	115	3	-0.008	-0.008	ppb	73.22	200.00	
133 Cs	115	3	0.027	0.027	ppb	1.10	200.00	
137 Ba	115	3	0.182	0.182	ppb	3.26	500.00	
205 Tl	209	3	0.007	0.007	ppb	21.28	200.00	
208 Pb	209	3	0.057	0.057	ppb	2.00	500.00	
232 Th	209	3	-0.046	-0.046	ppb	34.46	200.00	
238 U	209	3	0.000	0.000	ppb	517.78	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3177708	0.46	3287783	96.7	59.5 - 120	
45 Sc	1	4142685	1.90	3997306	103.6	59.5 - 120	
45 Sc	2	766438	1.32	789072	97.1	59.5 - 120	
45 Sc	3	10834184	2.03	10993292	98.6	59.5 - 120	
72 Ge	1	1136479	2.40	1091377	104.1	59.5 - 120	
72 Ge	2	367833	1.26	362817	101.4	59.5 - 120	
72 Ge	3	2632477	1.53	2630124	100.1	59.5 - 120	
74 Ge	1	1605697	1.03	1537843	104.4	59.5 - 120	
74 Ge	2	538444	1.07	541515	99.4	59.5 - 120	
74 Ge	3	3644613	1.57	3611946	100.9	59.5 - 120	
115 In	1	5850060	1.88	5666378	103.2	59.5 - 120	
115 In	2	1578894	0.81	1602760	98.5	59.5 - 120	
115 In	3	9872374	0.97	9901388	99.7	59.5 - 120	
159 Tb	3	13980898	0.35	14162891	98.7	59.5 - 120	
209 Bi	3	17165734	1.40	17687444	97.1	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\014SMPL.D\014SMPL.D#
Date Acquired: Apr 14 2017 06:06 pm
Acq. Method: ACZ.M
Operator:
Sample Name: WG421039LFB
Misc Info:
Vial Number: 2208
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	48.380	48.380	ppb	1.20	200.00	
11 B	6	3	13.950	13.950	ppb	1.01	20.00	
27 Al	72	3	50.970	50.970	ppb	1.52	1000.00	
51 V	45	2	50.200	50.200	ppb	2.71	200.00	
52 Cr	45	2	49.540	49.540	ppb	0.57	200.00	
55 Mn	72	3	50.760	50.760	ppb	0.57	200.00	
56 Fe	45	1	52.530	52.530	ppb	1.28	1000.00	
59 Co	72	3	49.970	49.970	ppb	1.15	200.00	
60 Ni	45	2	50.860	50.860	ppb	1.32	500.00	
63 Cu	45	2	49.660	49.660	ppb	1.58	500.00	
66 Zn	72	3	51.010	51.010	ppb	0.85	1000.00	
75 As	45	2	50.390	50.390	ppb	1.26	200.00	
78 Se	45	1	50.360	50.360	ppb	1.16	500.00	
98 Mo	115	3	47.830	47.830	ppb	2.92	200.00	
107 Ag	115	3	9.473	9.473	ppb	2.78	50.00	
111 Cd	115	3	50.020	50.020	ppb	1.85	200.00	
118 Sn	115	3	46.600	46.600	ppb	2.47	200.00	
121 Sb	115	3	10.850	10.850	ppb	2.24	25.00	
125 Te	115	3	49.260	49.260	ppb	3.56	200.00	
133 Cs	115	3	50.350	50.350	ppb	3.91	200.00	
137 Ba	115	3	50.960	50.960	ppb	3.09	500.00	
205 Tl	209	3	50.350	50.350	ppb	0.39	200.00	
208 Pb	209	3	49.270	49.270	ppb	1.67	500.00	
232 Th	209	3	46.660	46.660	ppb	2.99	200.00	
238 U	209	3	50.350	50.350	ppb	1.23	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3156609	0.45	3287783	96.0	59.5 - 120	
45 Sc	1	4046574	0.41	3997306	101.2	59.5 - 120	
45 Sc	2	759437	2.65	789072	96.2	59.5 - 120	
45 Sc	3	10794783	1.52	10993292	98.2	59.5 - 120	
72 Ge	1	1116764	1.44	1091377	102.3	59.5 - 120	
72 Ge	2	356926	1.68	362817	98.4	59.5 - 120	
72 Ge	3	2608198	1.66	2630124	99.2	59.5 - 120	
74 Ge	1	1577266	1.42	1537843	102.6	59.5 - 120	
74 Ge	2	526731	1.67	541515	97.3	59.5 - 120	
74 Ge	3	3636127	0.73	3611946	100.7	59.5 - 120	
115 In	1	5723119	1.00	5666378	101.0	59.5 - 120	
115 In	2	1551910	2.73	1602760	96.8	59.5 - 120	
115 In	3	9783467	1.47	9901388	98.8	59.5 - 120	
159 Tb	3	13888763	0.67	14162891	98.1	59.5 - 120	
209 Bi	3	17453956	0.35	17687444	98.7	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\015SMPL.D\015SMPL.D#
Date Acquired: Apr 14 2017 06:09 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-01
Misc Info:
Vial Number: 2209
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.028	0.028	ppb	2.05	200.00	
11 B	6	3	9.916	9.916	ppb	1.34	20.00	
27 Al	72	3	383.800	383.800	ppb	1.59	1000.00	
51 V	45	2	5.021	5.021	ppb	1.37	200.00	
52 Cr	45	2	8.231	8.231	ppb	1.17	200.00	
55 Mn	72	3	4.285	4.285	ppb	2.08	200.00	
56 Fe	45	1	495.400	495.400	ppb	1.98	1000.00	
59 Co	72	3	0.094	0.094	ppb	4.01	200.00	
60 Ni	45	2	4.413	4.413	ppb	4.02	500.00	
63 Cu	45	2	1.472	1.472	ppb	4.37	500.00	
66 Zn	72	3	10.120	10.120	ppb	1.26	1000.00	
75 As	45	2	1.636	1.636	ppb	9.63	200.00	
78 Se	45	1	5.096	5.096	ppb	2.51	500.00	
98 Mo	115	3	4.543	4.543	ppb	0.80	200.00	
107 Ag	115	3	0.015	0.015	ppb	20.71	50.00	
111 Cd	115	3	0.132	0.132	ppb	7.26	200.00	
118 Sn	115	3	0.259	0.259	ppb	8.50	200.00	
121 Sb	115	3	0.154	0.154	ppb	7.90	25.00	
125 Te	115	3	0.040	0.040	ppb	53.33	200.00	
133 Cs	115	3	0.092	0.092	ppb	3.16	200.00	
137 Ba	115	3	11.540	11.540	ppb	1.25	500.00	
205 Tl	209	3	0.038	0.038	ppb	2.15	200.00	
208 Pb	209	3	0.245	0.245	ppb	0.64	500.00	
232 Th	209	3	0.861	0.861	ppb	2.28	200.00	
238 U	209	3	0.158	0.158	ppb	10.69	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3059602	1.64	3287783	93.1	59.5 - 120	
45 Sc	1	4019965	1.67	3997306	100.6	59.5 - 120	
45 Sc	2	761322	1.04	789072	96.5	59.5 - 120	
45 Sc	3	10756113	0.86	10993292	97.8	59.5 - 120	
72 Ge	1	1115426	0.38	1091377	102.2	59.5 - 120	
72 Ge	2	363635	0.75	362817	100.2	59.5 - 120	
72 Ge	3	2625386	0.60	2630124	99.8	59.5 - 120	
74 Ge	1	1576872	0.81	1537843	102.5	59.5 - 120	
74 Ge	2	534708	1.05	541515	98.7	59.5 - 120	
74 Ge	3	3641412	0.55	3611946	100.8	59.5 - 120	
115 In	1	5745284	0.84	5666378	101.4	59.5 - 120	
115 In	2	1560803	1.40	1602760	97.4	59.5 - 120	
115 In	3	9697038	0.25	9901388	97.9	59.5 - 120	
159 Tb	3	13990668	0.50	14162891	98.8	59.5 - 120	
209 Bi	3	17339676	0.61	17687444	98.0	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\016SMPL.D\016SMPL.D#
Date Acquired: Apr 14 2017 06:12 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-01MS
Misc Info:
Vial Number: 2210
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	49.470	49.470	ppb	1.75	200.00	
11 B	6	3	19.040	19.040	ppb	3.63	20.00	
27 Al	72	3	327.600	327.600	ppb	2.00	1000.00	
51 V	45	2	55.120	55.120	ppb	1.66	200.00	
52 Cr	45	2	55.150	55.150	ppb	1.67	200.00	
55 Mn	72	3	55.370	55.370	ppb	0.74	200.00	
56 Fe	45	1	524.300	524.300	ppb	0.48	1000.00	
59 Co	72	3	49.960	49.960	ppb	2.46	200.00	
60 Ni	45	2	55.020	55.020	ppb	1.48	500.00	
63 Cu	45	2	50.940	50.940	ppb	1.05	500.00	
66 Zn	72	3	61.200	61.200	ppb	1.79	1000.00	
75 As	45	2	53.700	53.700	ppb	1.07	200.00	
78 Se	45	1	55.270	55.270	ppb	0.79	500.00	
98 Mo	115	3	52.610	52.610	ppb	0.50	200.00	
107 Ag	115	3	9.478	9.478	ppb	0.41	50.00	
111 Cd	115	3	51.100	51.100	ppb	0.39	200.00	
118 Sn	115	3	45.430	45.430	ppb	0.46	200.00	
121 Sb	115	3	10.860	10.860	ppb	0.33	25.00	
125 Te	115	3	52.560	52.560	ppb	3.09	200.00	
133 Cs	115	3	51.180	51.180	ppb	1.29	200.00	
137 Ba	115	3	63.570	63.570	ppb	0.61	500.00	
205 Tl	209	3	51.770	51.770	ppb	1.69	200.00	
208 Pb	209	3	50.080	50.080	ppb	1.58	500.00	
232 Th	209	3	48.540	48.540	ppb	1.23	200.00	
238 U	209	3	51.540	51.540	ppb	1.37	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3220377	1.80	3287783	97.9	59.5 - 120	
45 Sc	1	4174480	0.60	3997306	104.4	59.5 - 120	
45 Sc	2	779588	1.40	789072	98.8	59.5 - 120	
45 Sc	3	11090378	0.57	10993292	100.9	59.5 - 120	
72 Ge	1	1142484	1.36	1091377	104.7	59.5 - 120	
72 Ge	2	367258	1.12	362817	101.2	59.5 - 120	
72 Ge	3	2680736	1.00	2630124	101.9	59.5 - 120	
74 Ge	1	1622085	0.83	1537843	105.5	59.5 - 120	
74 Ge	2	543827	1.76	541515	100.4	59.5 - 120	
74 Ge	3	3695115	1.59	3611946	102.3	59.5 - 120	
115 In	1	5850543	1.45	5666378	103.3	59.5 - 120	
115 In	2	1570858	2.69	1602760	98.0	59.5 - 120	
115 In	3	9878937	1.36	9901388	99.8	59.5 - 120	
159 Tb	3	13966235	0.34	14162891	98.6	59.5 - 120	
209 Bi	3	17427458	0.89	17687444	98.5	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\017SMPL.D\017SMPL.D#
Date Acquired: Apr 14 2017 06:15 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-01MSD
Misc Info:
Vial Number: 2211
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	48.520	48.520	ppb	1.32	200.00	
11 B	6	3	19.480	19.480	ppb	1.27	20.00	
27 Al	72	3	428.400	428.400	ppb	0.52	1000.00	
51 V	45	2	55.640	55.640	ppb	1.35	200.00	
52 Cr	45	2	57.280	57.280	ppb	1.24	200.00	
55 Mn	72	3	55.770	55.770	ppb	3.66	200.00	
56 Fe	45	1	540.100	540.100	ppb	1.18	1000.00	
59 Co	72	3	49.710	49.710	ppb	4.95	200.00	
60 Ni	45	2	54.770	54.770	ppb	1.62	500.00	
63 Cu	45	2	50.080	50.080	ppb	1.04	500.00	
66 Zn	72	3	57.300	57.300	ppb	3.67	1000.00	
75 As	45	2	52.130	52.130	ppb	1.77	200.00	
78 Se	45	1	54.750	54.750	ppb	0.79	500.00	
98 Mo	115	3	51.840	51.840	ppb	1.91	200.00	
107 Ag	115	3	9.431	9.431	ppb	1.59	50.00	
111 Cd	115	3	49.530	49.530	ppb	1.84	200.00	
118 Sn	115	3	47.280	47.280	ppb	1.70	200.00	
121 Sb	115	3	10.910	10.910	ppb	1.25	25.00	
125 Te	115	3	50.370	50.370	ppb	2.05	200.00	
133 Cs	115	3	50.890	50.890	ppb	1.45	200.00	
137 Ba	115	3	62.470	62.470	ppb	2.19	500.00	
205 Tl	209	3	51.460	51.460	ppb	1.88	200.00	
208 Pb	209	3	49.660	49.660	ppb	2.10	500.00	
232 Th	209	3	51.780	51.780	ppb	2.54	200.00	
238 U	209	3	51.630	51.630	ppb	2.40	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3175292	0.10	3287783	96.6	59.5 - 120	
45 Sc	1	4100076	0.74	3997306	102.6	59.5 - 120	
45 Sc	2	767971	2.59	789072	97.3	59.5 - 120	
45 Sc	3	10847187	2.70	10993292	98.7	59.5 - 120	
72 Ge	1	1114390	0.70	1091377	102.1	59.5 - 120	
72 Ge	2	359605	1.96	362817	99.1	59.5 - 120	
72 Ge	3	2636743	1.43	2630124	100.3	59.5 - 120	
74 Ge	1	1590941	1.00	1537843	103.5	59.5 - 120	
74 Ge	2	535487	1.90	541515	98.9	59.5 - 120	
74 Ge	3	3637843	0.68	3611946	100.7	59.5 - 120	
115 In	1	5727206	1.54	5666378	101.1	59.5 - 120	
115 In	2	1555405	1.98	1602760	97.0	59.5 - 120	
115 In	3	9832263	0.55	9901388	99.3	59.5 - 120	
159 Tb	3	13941241	1.26	14162891	98.4	59.5 - 120	
209 Bi	3	17136582	1.11	17687444	96.9	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\018SMPL.D\018SMPL.D#
Date Acquired: Apr 14 2017 06:18 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-01DUP
Misc Info:
Vial Number: 2212
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.075	0.075	ppb	12.27	200.00	
11 B	6	3	9.918	9.918	ppb	2.53	20.00	
27 Al	72	3	1,187.000	1187.000	ppb	1.00	1000.00	OCAL
51 V	45	2	8.005	8.005	ppb	0.58	200.00	
52 Cr	45	2	24.440	24.440	ppb	0.24	200.00	
55 Mn	72	3	6.949	6.949	ppb	1.16	200.00	
56 Fe	45	1	1,274.000	1274.000	ppb	5.90	1000.00	OCAL
59 Co	72	3	0.204	0.204	ppb	3.35	200.00	
60 Ni	45	2	10.060	10.060	ppb	2.69	500.00	
63 Cu	45	2	3.345	3.345	ppb	1.45	500.00	
66 Zn	72	3	22.120	22.120	ppb	0.69	1000.00	
75 As	45	2	1.992	1.992	ppb	3.32	200.00	
78 Se	45	1	4.422	4.422	ppb	5.73	500.00	
98 Mo	115	3	4.164	4.164	ppb	1.54	200.00	
107 Ag	115	3	0.023	0.023	ppb	30.71	50.00	
111 Cd	115	3	0.272	0.272	ppb	1.92	200.00	
118 Sn	115	3	0.631	0.631	ppb	4.21	200.00	
121 Sb	115	3	0.177	0.177	ppb	7.19	25.00	
125 Te	115	3	0.035	0.035	ppb	47.07	200.00	
133 Cs	115	3	0.240	0.240	ppb	2.34	200.00	
137 Ba	115	3	11.370	11.370	ppb	1.58	500.00	
205 Tl	209	3	0.050	0.050	ppb	5.04	200.00	
208 Pb	209	3	0.687	0.687	ppb	2.05	500.00	
232 Th	209	3	1.333	1.333	ppb	2.06	200.00	
238 U	209	3	0.269	0.269	ppb	3.05	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3166340	1.49	3287783	96.3	59.5 - 120	
45 Sc	1	4237239	4.48	3997306	106.0	59.5 - 120	
45 Sc	2	761455	1.80	789072	96.5	59.5 - 120	
45 Sc	3	10952939	0.91	10993292	99.6	59.5 - 120	
72 Ge	1	1145640	3.23	1091377	105.0	59.5 - 120	
72 Ge	2	360898	2.68	362817	99.5	59.5 - 120	
72 Ge	3	2645794	0.32	2630124	100.6	59.5 - 120	
74 Ge	1	1619405	2.93	1537843	105.3	59.5 - 120	
74 Ge	2	535237	2.70	541515	98.8	59.5 - 120	
74 Ge	3	3646210	0.62	3611946	100.9	59.5 - 120	
115 In	1	5848444	3.03	5666378	103.2	59.5 - 120	
115 In	2	1548769	3.24	1602760	96.6	59.5 - 120	
115 In	3	9839452	0.53	9901388	99.4	59.5 - 120	
159 Tb	3	14036791	1.51	14162891	99.1	59.5 - 120	
209 Bi	3	17207670	1.52	17687444	97.3	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\019SMPL.D\019SMPL.D#
Date Acquired: Apr 14 2017 06:21 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-02
Misc Info:
Vial Number: 2301
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.009	0.009	ppb	25.34	200.00	
11 B	6	3	7.606	7.606	ppb	1.66	20.00	
27 Al	72	3	102.900	102.900	ppb	1.57	1000.00	
51 V	45	2	3.285	3.285	ppb	2.60	200.00	
52 Cr	45	2	0.465	0.465	ppb	6.13	200.00	
55 Mn	72	3	3.655	3.655	ppb	2.53	200.00	
56 Fe	45	1	79.080	79.080	ppb	2.94	1000.00	
59 Co	72	3	0.051	0.051	ppb	7.63	200.00	
60 Ni	45	2	0.113	0.113	ppb	18.26	500.00	
63 Cu	45	2	0.308	0.308	ppb	5.66	500.00	
66 Zn	72	3	1.984	1.984	ppb	4.47	1000.00	
75 As	45	2	1.582	1.582	ppb	7.23	200.00	
78 Se	45	1	0.047	0.047	ppb	31.14	500.00	
98 Mo	115	3	0.797	0.797	ppb	2.37	200.00	
107 Ag	115	3	0.006	0.006	ppb	65.87	50.00	
111 Cd	115	3	-0.002	-0.002	ppb	353.95	200.00	
118 Sn	115	3	0.232	0.232	ppb	10.13	200.00	
121 Sb	115	3	0.160	0.160	ppb	6.37	25.00	
125 Te	115	3	0.006	0.006	ppb	305.61	200.00	
133 Cs	115	3	0.039	0.039	ppb	7.18	200.00	
137 Ba	115	3	2.815	2.815	ppb	2.48	500.00	
205 Tl	209	3	0.008	0.008	ppb	15.33	200.00	
208 Pb	209	3	0.068	0.068	ppb	4.08	500.00	
232 Th	209	3	0.401	0.401	ppb	13.71	200.00	
238 U	209	3	0.056	0.056	ppb	1.04	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3101121	1.17	3287783	94.3	59.5 - 120	
45 Sc	1	4060664	3.33	3997306	101.6	59.5 - 120	
45 Sc	2	761043	1.24	789072	96.4	59.5 - 120	
45 Sc	3	10812158	1.88	10993292	98.4	59.5 - 120	
72 Ge	1	1104893	0.99	1091377	101.2	59.5 - 120	
72 Ge	2	357043	0.96	362817	98.4	59.5 - 120	
72 Ge	3	2614714	1.29	2630124	99.4	59.5 - 120	
74 Ge	1	1572983	1.27	1537843	102.3	59.5 - 120	
74 Ge	2	532123	0.91	541515	98.3	59.5 - 120	
74 Ge	3	3597767	2.14	3611946	99.6	59.5 - 120	
115 In	1	5707210	3.42	5666378	100.7	59.5 - 120	
115 In	2	1574554	1.57	1602760	98.2	59.5 - 120	
115 In	3	9804567	1.10	9901388	99.0	59.5 - 120	
159 Tb	3	14075965	0.37	14162891	99.4	59.5 - 120	
209 Bi	3	17401334	0.37	17687444	98.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\020SMPL.D\020SMPL.D#
Date Acquired: Apr 14 2017 06:24 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-03
Misc Info:
Vial Number: 2302
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.006	0.006	ppb	38.78	200.00	
11 B	6	3	7.239	7.239	ppb	4.31	20.00	
27 Al	72	3	109.900	109.900	ppb	3.96	1000.00	
51 V	45	2	2.963	2.963	ppb	0.84	200.00	
52 Cr	45	2	0.497	0.497	ppb	1.24	200.00	
55 Mn	72	3	2.301	2.301	ppb	2.04	200.00	
56 Fe	45	1	91.250	91.250	ppb	1.67	1000.00	
59 Co	72	3	0.043	0.043	ppb	6.62	200.00	
60 Ni	45	2	0.219	0.219	ppb	5.90	500.00	
63 Cu	45	2	3.202	3.202	ppb	2.68	500.00	
66 Zn	72	3	8.633	8.633	ppb	2.68	1000.00	
75 As	45	2	1.389	1.389	ppb	7.93	200.00	
78 Se	45	1	0.035	0.035	ppb	13.75	500.00	
98 Mo	115	3	0.639	0.639	ppb	2.13	200.00	
107 Ag	115	3	0.000	0.000	ppb	455.45	50.00	
111 Cd	115	3	0.000	0.000	ppb	4676.90	200.00	
118 Sn	115	3	0.049	0.049	ppb	18.40	200.00	
121 Sb	115	3	0.139	0.139	ppb	0.13	25.00	
125 Te	115	3	-0.008	-0.008	ppb	137.59	200.00	
133 Cs	115	3	0.026	0.026	ppb	3.02	200.00	
137 Ba	115	3	2.983	2.983	ppb	2.86	500.00	
205 Tl	209	3	0.004	0.004	ppb	41.59	200.00	
208 Pb	209	3	0.207	0.207	ppb	3.36	500.00	
232 Th	209	3	0.193	0.193	ppb	20.98	200.00	
238 U	209	3	0.049	0.049	ppb	3.13	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3155594	1.03	3287783	96.0	59.5 - 120	
45 Sc	1	4044631	0.40	3997306	101.2	59.5 - 120	
45 Sc	2	764290	1.54	789072	96.9	59.5 - 120	
45 Sc	3	10794656	1.72	10993292	98.2	59.5 - 120	
72 Ge	1	1123127	1.30	1091377	102.9	59.5 - 120	
72 Ge	2	358783	0.40	362817	98.9	59.5 - 120	
72 Ge	3	2641920	0.86	2630124	100.4	59.5 - 120	
74 Ge	1	1571784	1.10	1537843	102.2	59.5 - 120	
74 Ge	2	534199	1.09	541515	98.6	59.5 - 120	
74 Ge	3	3636452	0.92	3611946	100.7	59.5 - 120	
115 In	1	5783735	0.55	5666378	102.1	59.5 - 120	
115 In	2	1564578	2.14	1602760	97.6	59.5 - 120	
115 In	3	9857982	1.03	9901388	99.6	59.5 - 120	
159 Tb	3	14031373	1.35	14162891	99.1	59.5 - 120	
209 Bi	3	17243784	1.64	17687444	97.5	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\021SMPL.D\021SMPL.D#
Date Acquired: Apr 14 2017 06:27 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-04
Misc Info:
Vial Number: 2303
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.004	0.004	ppb	43.96	200.00	
11 B	6	3	12.130	12.130	ppb	3.30	20.00	
27 Al	72	3	40.630	40.630	ppb	2.68	1000.00	
51 V	45	2	0.648	0.648	ppb	11.28	200.00	
52 Cr	45	2	0.616	0.616	ppb	4.35	200.00	
55 Mn	72	3	2.439	2.439	ppb	4.15	200.00	
56 Fe	45	1	34.830	34.830	ppb	0.19	1000.00	
59 Co	72	3	0.047	0.047	ppb	7.15	200.00	
60 Ni	45	2	0.149	0.149	ppb	15.16	500.00	
63 Cu	45	2	0.956	0.956	ppb	6.30	500.00	
66 Zn	72	3	2.998	2.998	ppb	3.48	1000.00	
75 As	45	2	0.493	0.493	ppb	9.04	200.00	
78 Se	45	1	8.875	8.875	ppb	0.16	500.00	
98 Mo	115	3	4.519	4.519	ppb	3.44	200.00	
107 Ag	115	3	0.031	0.031	ppb	7.84	50.00	
111 Cd	115	3	0.003	0.003	ppb	332.76	200.00	
118 Sn	115	3	0.014	0.014	ppb	64.33	200.00	
121 Sb	115	3	0.131	0.131	ppb	4.47	25.00	
125 Te	115	3	-0.011	-0.011	ppb	57.00	200.00	
133 Cs	115	3	0.011	0.011	ppb	9.50	200.00	
137 Ba	115	3	3.442	3.442	ppb	6.24	500.00	
205 Tl	209	3	0.003	0.003	ppb	36.61	200.00	
208 Pb	209	3	0.069	0.069	ppb	2.13	500.00	
232 Th	209	3	0.074	0.074	ppb	4.97	200.00	
238 U	209	3	0.052	0.052	ppb	6.24	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3119549	0.84	3287783	94.9	59.5 - 120	
45 Sc	1	4051372	0.47	3997306	101.4	59.5 - 120	
45 Sc	2	768145	2.16	789072	97.3	59.5 - 120	
45 Sc	3	10718132	0.97	10993292	97.5	59.5 - 120	
72 Ge	1	1104685	0.68	1091377	101.2	59.5 - 120	
72 Ge	2	357957	0.95	362817	98.7	59.5 - 120	
72 Ge	3	2616710	0.76	2630124	99.5	59.5 - 120	
74 Ge	1	1570731	0.86	1537843	102.1	59.5 - 120	
74 Ge	2	529191	0.32	541515	97.7	59.5 - 120	
74 Ge	3	3617036	0.81	3611946	100.1	59.5 - 120	
115 In	1	5765332	0.25	5666378	101.7	59.5 - 120	
115 In	2	1582128	0.46	1602760	98.7	59.5 - 120	
115 In	3	9777867	1.75	9901388	98.8	59.5 - 120	
159 Tb	3	14064833	0.96	14162891	99.3	59.5 - 120	
209 Bi	3	17397540	0.66	17687444	98.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\022SMPL.D\022SMPL.D#
Date Acquired: Apr 14 2017 06:30 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-05
Misc Info:
Vial Number: 2304
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.021	0.021	ppb	23.19	200.00	
11 B	6	3	12.430	12.430	ppb	2.58	20.00	
27 Al	72	3	553.700	553.700	ppb	1.09	1000.00	
51 V	45	2	1.350	1.350	ppb	4.82	200.00	
52 Cr	45	2	1.019	1.019	ppb	5.13	200.00	
55 Mn	72	3	7.954	7.954	ppb	2.80	200.00	
56 Fe	45	1	443.500	443.500	ppb	1.20	1000.00	
59 Co	72	3	0.086	0.086	ppb	2.20	200.00	
60 Ni	45	2	0.423	0.423	ppb	3.29	500.00	
63 Cu	45	2	1.667	1.667	ppb	3.60	500.00	
66 Zn	72	3	7.103	7.103	ppb	0.66	1000.00	
75 As	45	2	1.497	1.497	ppb	10.03	200.00	
78 Se	45	1	0.096	0.096	ppb	17.49	500.00	
98 Mo	115	3	1.336	1.336	ppb	4.53	200.00	
107 Ag	115	3	0.000	0.000	ppb	378.33	50.00	
111 Cd	115	3	0.012	0.012	ppb	36.49	200.00	
118 Sn	115	3	-0.011	-0.011	ppb	119.75	200.00	
121 Sb	115	3	0.714	0.714	ppb	1.20	25.00	
125 Te	115	3	-0.008	-0.008	ppb	131.60	200.00	
133 Cs	115	3	0.102	0.102	ppb	3.92	200.00	
137 Ba	115	3	3.201	3.201	ppb	1.83	500.00	
205 Tl	209	3	0.008	0.008	ppb	18.72	200.00	
208 Pb	209	3	0.447	0.447	ppb	1.43	500.00	
232 Th	209	3	0.011	0.011	ppb	141.34	200.00	
238 U	209	3	0.047	0.047	ppb	8.85	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3152849	0.83	3287783	95.9	59.5 - 120	
45 Sc	1	4045345	0.78	3997306	101.2	59.5 - 120	
45 Sc	2	768545	1.79	789072	97.4	59.5 - 120	
45 Sc	3	10887910	0.21	10993292	99.0	59.5 - 120	
72 Ge	1	1111144	0.85	1091377	101.8	59.5 - 120	
72 Ge	2	362046	1.62	362817	99.8	59.5 - 120	
72 Ge	3	2626862	0.15	2630124	99.9	59.5 - 120	
74 Ge	1	1566978	0.46	1537843	101.9	59.5 - 120	
74 Ge	2	534081	1.41	541515	98.6	59.5 - 120	
74 Ge	3	3626803	1.65	3611946	100.4	59.5 - 120	
115 In	1	5722866	1.11	5666378	101.0	59.5 - 120	
115 In	2	1574550	2.46	1602760	98.2	59.5 - 120	
115 In	3	9860093	0.58	9901388	99.6	59.5 - 120	
159 Tb	3	14145195	0.45	14162891	99.9	59.5 - 120	
209 Bi	3	17477068	1.03	17687444	98.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\023_CCV.D\023_CCV.D#
Date Acquired: Apr 14 2017 06:33 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:46 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	98.570	3.67	100.00	98.6	89 - 110	
11 B	6	3	9.848	1.41	10.00	98.5	89 - 110	
27 Al	72	3	501.500	2.30	500.00	100.3	89 - 110	
51 V	45	2	100.800	0.47	100.00	100.8	89 - 110	
52 Cr	45	2	99.440	1.62	100.00	99.4	89 - 110	
55 Mn	72	3	102.300	4.66	100.00	102.3	89 - 110	
56 Fe	45	1	512.400	1.10	500.00	102.5	89 - 110	
59 Co	72	3	102.000	3.64	100.00	102.0	89 - 110	
60 Ni	45	2	249.900	0.52	250.00	100.0	89 - 110	
63 Cu	45	2	249.600	2.05	250.00	99.8	89 - 110	
66 Zn	72	3	511.400	3.48	500.00	102.3	89 - 110	
75 As	45	2	99.390	0.51	100.00	99.4	89 - 110	
78 Se	45	1	252.700	1.80	250.00	101.1	89 - 110	
98 Mo	115	3	102.100	4.28	100.00	102.1	89 - 110	
107 Ag	115	3	25.100	2.41	25.00	100.4	89 - 110	
111 Cd	115	3	102.700	3.50	100.00	102.7	89 - 110	
118 Sn	115	3	102.700	3.67	100.00	102.7	89 - 110	
121 Sb	115	3	12.680	3.71	12.50	101.4	89 - 110	
125 Te	115	3	102.400	4.22	100.00	102.4	89 - 110	
133 Cs	115	3	103.000	3.20	100.00	103.0	89 - 110	
137 Ba	115	3	258.600	3.84	250.00	103.4	89 - 110	
205 Tl	209	3	103.300	3.09	100.00	103.3	89 - 110	
208 Pb	209	3	258.000	2.67	250.00	103.2	89 - 110	
232 Th	209	3	98.490	0.86	100.00	98.5	89 - 110	
238 U	209	3	103.300	2.38	100.00	103.3	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3069610	2.27	3287783	93.4	60 - 120	
45 Sc	1	3972923	0.56	3997306	99.4	60 - 120	
45 Sc	2	757922	1.42	789072	96.1	60 - 120	
45 Sc	3	10448112	0.73	10993292	95.0	60 - 120	
72 Ge	1	1084357	0.97	1091377	99.4	60 - 120	
72 Ge	2	351823	1.42	362817	97.0	60 - 120	
72 Ge	3	2567382	1.68	2630124	97.6	60 - 120	
74 Ge	1	1538587	0.85	1537843	100.0	60 - 120	
74 Ge	2	523264	1.51	541515	96.6	60 - 120	
74 Ge	3	3558818	1.21	3611946	98.5	60 - 120	
115 In	1	5623603	0.58	5666378	99.2	60 - 120	
115 In	2	1551127	1.82	1602760	96.8	60 - 120	
115 In	3	9560062	2.22	9901388	96.6	60 - 120	
159 Tb	3	13935006	2.26	14162891	98.4	60 - 120	
209 Bi	3	17239610	1.65	17687444	97.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\024_CCB.D\024_CCB.D#
Date Acquired: Apr 14 2017 06:36 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:46 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.010 ppb	33.82	0.150	
11 B	6	3	-0.197 ppb	46.02	1.500	
27 Al	72	3	0.009 ppb	232.75	3.000	
51 V	45	2	0.021 ppb	133.30	0.600	
52 Cr	45	2	0.003 ppb	264.77	1.500	
55 Mn	72	3	-0.022 ppb	6.36	1.500	
56 Fe	45	1	0.252 ppb	4.90	12.000	
59 Co	72	3	0.005 ppb	46.34	0.150	
60 Ni	45	2	0.036 ppb	10.59	1.800	
63 Cu	45	2	-0.052 ppb	30.13	1.500	
66 Zn	72	3	-0.008 ppb	740.73	6.000	
75 As	45	2	0.001 ppb	2371.40	0.600	
78 Se	45	1	0.037 ppb	15.96	0.300	
98 Mo	115	3	0.035 ppb	15.68	1.500	
107 Ag	115	3	0.000 ppb	27748.00	0.150	
111 Cd	115	3	0.001 ppb	561.47	0.300	
118 Sn	115	3	0.403 ppb	6.68	0.300	Fail
121 Sb	115	3	0.281 ppb	6.98	1.200	
125 Te	115	3	0.043 ppb	93.44	3.000	
133 Cs	115	3	0.014 ppb	3.25	0.600	
137 Ba	115	3	0.020 ppb	23.46	0.300	
205 Tl	209	3	0.018 ppb	10.12	0.300	
208 Pb	209	3	0.019 ppb	14.57	0.300	
232 Th	209	3	1.655 ppb	3.66	3.000	
238 U	209	3	0.023 ppb	3.98	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3058327	1.58	3287783	93.0	60 - 120	
45 Sc	1	3971235	0.63	3997306	99.3	60 - 120	
45 Sc	2	728309	1.79	789072	92.3	60 - 120	
45 Sc	3	10540386	1.20	10993292	95.9	60 - 120	
72 Ge	1	1081435	1.25	1091377	99.1	60 - 120	
72 Ge	2	345258	0.21	362817	95.2	60 - 120	
72 Ge	3	2563422	0.49	2630124	97.5	60 - 120	
74 Ge	1	1536873	0.25	1537843	99.9	60 - 120	
74 Ge	2	510887	0.55	541515	94.3	60 - 120	
74 Ge	3	3538310	0.95	3611946	98.0	60 - 120	
115 In	1	5619054	0.48	5666378	99.2	60 - 120	
115 In	2	1517658	0.56	1602760	94.7	60 - 120	
115 In	3	9601086	1.14	9901388	97.0	60 - 120	
159 Tb	3	13967512	0.74	14162891	98.6	60 - 120	
209 Bi	3	17291594	0.85	17687444	97.8	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

1 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\025SMPL.D\025SMPL.D#
Date Acquired: Apr 14 2017 06:39 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-05SDL
Misc Info:
Vial Number: 2305
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.009	0.009	ppb	29.12	200.00	
11 B	6	3	2.031	2.031	ppb	9.81	20.00	
27 Al	72	3	114.200	114.200	ppb	1.72	1000.00	
51 V	45	2	-0.141	-0.141	ppb	14.35	200.00	
52 Cr	45	2	0.180	0.180	ppb	2.72	200.00	
55 Mn	72	3	1.558	1.558	ppb	2.59	200.00	
56 Fe	45	1	89.950	89.950	ppb	0.71	1000.00	
59 Co	72	3	0.019	0.019	ppb	16.67	200.00	
60 Ni	45	2	0.092	0.092	ppb	17.57	500.00	
63 Cu	45	2	0.302	0.302	ppb	4.04	500.00	
66 Zn	72	3	2.586	2.586	ppb	7.34	1000.00	
75 As	45	2	0.203	0.203	ppb	36.32	200.00	
78 Se	45	1	0.018	0.018	ppb	8.40	500.00	
98 Mo	115	3	0.247	0.247	ppb	2.03	200.00	
107 Ag	115	3	-0.004	-0.004	ppb	35.70	50.00	
111 Cd	115	3	-0.001	-0.001	ppb	977.48	200.00	
118 Sn	115	3	0.120	0.120	ppb	6.32	200.00	
121 Sb	115	3	0.170	0.170	ppb	5.25	25.00	
125 Te	115	3	0.016	0.016	ppb	133.95	200.00	
133 Cs	115	3	0.020	0.020	ppb	6.04	200.00	
137 Ba	115	3	0.652	0.652	ppb	2.09	500.00	
205 Tl	209	3	0.005	0.005	ppb	27.20	200.00	
208 Pb	209	3	0.091	0.091	ppb	2.75	500.00	
232 Th	209	3	0.492	0.492	ppb	5.07	200.00	
238 U	209	3	0.012	0.012	ppb	14.83	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3136519	1.26	3287783	95.4	59.5 - 120	
45 Sc	1	4052678	0.68	3997306	101.4	59.5 - 120	
45 Sc	2	753033	1.78	789072	95.4	59.5 - 120	
45 Sc	3	10814374	0.35	10993292	98.4	59.5 - 120	
72 Ge	1	1100627	0.60	1091377	100.8	59.5 - 120	
72 Ge	2	357010	2.18	362817	98.4	59.5 - 120	
72 Ge	3	2611332	0.31	2630124	99.3	59.5 - 120	
74 Ge	1	1553344	0.17	1537843	101.0	59.5 - 120	
74 Ge	2	527976	2.00	541515	97.5	59.5 - 120	
74 Ge	3	3600441	0.91	3611946	99.7	59.5 - 120	
115 In	1	5729810	0.58	5666378	101.1	59.5 - 120	
115 In	2	1535867	1.16	1602760	95.8	59.5 - 120	
115 In	3	9838144	0.51	9901388	99.4	59.5 - 120	
159 Tb	3	14074865	0.59	14162891	99.4	59.5 - 120	
209 Bi	3	17271180	0.36	17687444	97.6	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\026SMPL.D\026SMPL.D#
Date Acquired: Apr 14 2017 06:42 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-06
Misc Info:
Vial Number: 2306
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.034	0.034	ppb	9.26	200.00	
11 B	6	3	9.686	9.686	ppb	4.54	20.00	
27 Al	72	3	664.500	664.500	ppb	1.00	1000.00	
51 V	45	2	2.123	2.123	ppb	0.32	200.00	
52 Cr	45	2	0.942	0.942	ppb	1.69	200.00	
55 Mn	72	3	18.300	18.300	ppb	1.31	200.00	
56 Fe	45	1	552.200	552.200	ppb	1.20	1000.00	
59 Co	72	3	0.181	0.181	ppb	2.41	200.00	
60 Ni	45	2	0.652	0.652	ppb	8.06	500.00	
63 Cu	45	2	4.885	4.885	ppb	1.84	500.00	
66 Zn	72	3	8.462	8.462	ppb	2.83	1000.00	
75 As	45	2	1.374	1.374	ppb	9.06	200.00	
78 Se	45	1	0.176	0.176	ppb	4.25	500.00	
98 Mo	115	3	1.393	1.393	ppb	4.01	200.00	
107 Ag	115	3	0.000	0.000	ppb	438.86	50.00	
111 Cd	115	3	0.015	0.015	ppb	87.44	200.00	
118 Sn	115	3	-0.021	-0.021	ppb	15.14	200.00	
121 Sb	115	3	0.485	0.485	ppb	2.76	25.00	
125 Te	115	3	-0.004	-0.004	ppb	192.80	200.00	
133 Cs	115	3	0.106	0.106	ppb	6.05	200.00	
137 Ba	115	3	3.693	3.693	ppb	3.87	500.00	
205 Tl	209	3	0.007	0.007	ppb	5.37	200.00	
208 Pb	209	3	0.281	0.281	ppb	2.38	500.00	
232 Th	209	3	0.207	0.207	ppb	13.19	200.00	
238 U	209	3	0.088	0.088	ppb	4.24	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3177042	1.83	3287783	96.6	59.5 - 120	
45 Sc	1	4052038	0.56	3997306	101.4	59.5 - 120	
45 Sc	2	762364	1.18	789072	96.6	59.5 - 120	
45 Sc	3	11050980	2.00	10993292	100.5	59.5 - 120	
72 Ge	1	1101861	0.34	1091377	101.0	59.5 - 120	
72 Ge	2	355967	0.28	362817	98.1	59.5 - 120	
72 Ge	3	2659459	0.37	2630124	101.1	59.5 - 120	
74 Ge	1	1573348	0.38	1537843	102.3	59.5 - 120	
74 Ge	2	529927	0.51	541515	97.9	59.5 - 120	
74 Ge	3	3669685	0.72	3611946	101.6	59.5 - 120	
115 In	1	5685743	1.32	5666378	100.3	59.5 - 120	
115 In	2	1544651	0.69	1602760	96.4	59.5 - 120	
115 In	3	9860945	2.13	9901388	99.6	59.5 - 120	
159 Tb	3	14051066	1.08	14162891	99.2	59.5 - 120	
209 Bi	3	17410988	0.70	17687444	98.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\027SMPL.D\027SMPL.D#
Date Acquired: Apr 14 2017 06:46 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-07
Misc Info:
Vial Number: 2307
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.043	0.043	ppb	3.29	200.00	
11 B	6	3	10.720	10.720	ppb	4.19	20.00	
27 Al	72	3	737.400	737.400	ppb	1.21	1000.00	
51 V	45	2	5.395	5.395	ppb	1.73	200.00	
52 Cr	45	2	16.740	16.740	ppb	2.26	200.00	
55 Mn	72	3	3.100	3.100	ppb	3.22	200.00	
56 Fe	45	1	657.000	657.000	ppb	0.38	1000.00	
59 Co	72	3	0.098	0.098	ppb	9.59	200.00	
60 Ni	45	2	3.689	3.689	ppb	4.77	500.00	
63 Cu	45	2	4.927	4.927	ppb	2.74	500.00	
66 Zn	72	3	10.820	10.820	ppb	3.42	1000.00	
75 As	45	2	1.539	1.539	ppb	8.17	200.00	
78 Se	45	1	0.602	0.602	ppb	2.89	500.00	
98 Mo	115	3	3.573	3.573	ppb	1.91	200.00	
107 Ag	115	3	0.004	0.004	ppb	43.98	50.00	
111 Cd	115	3	0.042	0.042	ppb	16.11	200.00	
118 Sn	115	3	0.018	0.018	ppb	3.39	200.00	
121 Sb	115	3	0.929	0.929	ppb	4.14	25.00	
125 Te	115	3	-0.013	-0.013	ppb	44.30	200.00	
133 Cs	115	3	0.156	0.156	ppb	1.96	200.00	
137 Ba	115	3	3.033	3.033	ppb	3.64	500.00	
205 Tl	209	3	0.015	0.015	ppb	9.39	200.00	
208 Pb	209	3	0.328	0.328	ppb	1.04	500.00	
232 Th	209	3	0.260	0.260	ppb	5.67	200.00	
238 U	209	3	0.491	0.491	ppb	2.35	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3124655	1.76	3287783	95.0	59.5 - 120	
45 Sc	1	3983341	0.80	3997306	99.7	59.5 - 120	
45 Sc	2	754716	3.03	789072	95.6	59.5 - 120	
45 Sc	3	10787216	0.85	10993292	98.1	59.5 - 120	
72 Ge	1	1079885	1.86	1091377	98.9	59.5 - 120	
72 Ge	2	356795	2.30	362817	98.3	59.5 - 120	
72 Ge	3	2580529	0.07	2630124	98.1	59.5 - 120	
74 Ge	1	1547134	1.05	1537843	100.6	59.5 - 120	
74 Ge	2	530813	2.07	541515	98.0	59.5 - 120	
74 Ge	3	3562800	0.42	3611946	98.6	59.5 - 120	
115 In	1	5641561	1.22	5666378	99.6	59.5 - 120	
115 In	2	1561296	1.10	1602760	97.4	59.5 - 120	
115 In	3	9840601	1.20	9901388	99.4	59.5 - 120	
159 Tb	3	14109373	1.24	14162891	99.6	59.5 - 120	
209 Bi	3	17294520	0.84	17687444	97.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\028SMPL.D\028SMPL.D#
Date Acquired: Apr 14 2017 06:49 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-08
Misc Info:
Vial Number: 2308
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.002	0.002	ppb	153.49	200.00	
11 B	6	3	8.489	8.489	ppb	8.13	20.00	
27 Al	72	3	126.200	126.200	ppb	3.38	1000.00	
51 V	45	2	2.065	2.065	ppb	3.90	200.00	
52 Cr	45	2	2.628	2.628	ppb	2.76	200.00	
55 Mn	72	3	2.161	2.161	ppb	2.85	200.00	
56 Fe	45	1	99.040	99.040	ppb	2.98	1000.00	
59 Co	72	3	0.188	0.188	ppb	4.36	200.00	
60 Ni	45	2	1.718	1.718	ppb	1.68	500.00	
63 Cu	45	2	1.135	1.135	ppb	4.35	500.00	
66 Zn	72	3	4.254	4.254	ppb	3.58	1000.00	
75 As	45	2	1.046	1.046	ppb	5.17	200.00	
78 Se	45	1	1.081	1.081	ppb	9.80	500.00	
98 Mo	115	3	2.281	2.281	ppb	3.32	200.00	
107 Ag	115	3	0.009	0.009	ppb	12.66	50.00	
111 Cd	115	3	0.013	0.013	ppb	26.37	200.00	
118 Sn	115	3	-0.039	-0.039	ppb	19.69	200.00	
121 Sb	115	3	1.286	1.286	ppb	2.60	25.00	
125 Te	115	3	-0.004	-0.004	ppb	500.14	200.00	
133 Cs	115	3	0.032	0.032	ppb	2.15	200.00	
137 Ba	115	3	1.678	1.678	ppb	2.71	500.00	
205 Tl	209	3	0.009	0.009	ppb	15.17	200.00	
208 Pb	209	3	0.071	0.071	ppb	3.89	500.00	
232 Th	209	3	0.075	0.075	ppb	10.40	200.00	
238 U	209	3	0.030	0.030	ppb	4.40	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3165826	2.45	3287783	96.3	59.5 - 120	
45 Sc	1	4110085	2.38	3997306	102.8	59.5 - 120	
45 Sc	2	765636	2.76	789072	97.0	59.5 - 120	
45 Sc	3	10795429	0.29	10993292	98.2	59.5 - 120	
72 Ge	1	1113747	2.56	1091377	102.0	59.5 - 120	
72 Ge	2	360560	2.78	362817	99.4	59.5 - 120	
72 Ge	3	2610617	1.32	2630124	99.3	59.5 - 120	
74 Ge	1	1573993	2.47	1537843	102.4	59.5 - 120	
74 Ge	2	532278	1.44	541515	98.3	59.5 - 120	
74 Ge	3	3600939	1.34	3611946	99.7	59.5 - 120	
115 In	1	5824183	1.86	5666378	102.8	59.5 - 120	
115 In	2	1562136	2.56	1602760	97.5	59.5 - 120	
115 In	3	9843150	1.15	9901388	99.4	59.5 - 120	
159 Tb	3	14109216	0.49	14162891	99.6	59.5 - 120	
209 Bi	3	17401320	0.66	17687444	98.4	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\029SMPL.D\029SMPL.D#
Date Acquired: Apr 14 2017 06:52 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-09
Misc Info:
Vial Number: 2309
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.019	0.019	ppb	36.14	200.00	
11 B	6	3	9.039	9.039	ppb	4.39	20.00	
27 Al	72	3	376.000	376.000	ppb	2.22	1000.00	
51 V	45	2	2.420	2.420	ppb	2.11	200.00	
52 Cr	45	2	7.851	7.851	ppb	1.86	200.00	
55 Mn	72	3	3.745	3.745	ppb	3.72	200.00	
56 Fe	45	1	161.000	161.000	ppb	1.36	1000.00	
59 Co	72	3	0.086	0.086	ppb	1.28	200.00	
60 Ni	45	2	2.904	2.904	ppb	5.15	500.00	
63 Cu	45	2	0.953	0.953	ppb	5.02	500.00	
66 Zn	72	3	7.794	7.794	ppb	3.20	1000.00	
75 As	45	2	1.532	1.532	ppb	7.02	200.00	
78 Se	45	1	9.145	9.145	ppb	1.87	500.00	
98 Mo	115	3	4.040	4.040	ppb	1.92	200.00	
107 Ag	115	3	0.000	0.000	ppb	1425.20	50.00	
111 Cd	115	3	0.044	0.044	ppb	23.25	200.00	
118 Sn	115	3	-0.040	-0.040	ppb	40.77	200.00	
121 Sb	115	3	0.449	0.449	ppb	1.55	25.00	
125 Te	115	3	-0.021	-0.021	ppb	15.73	200.00	
133 Cs	115	3	0.080	0.080	ppb	3.14	200.00	
137 Ba	115	3	2.594	2.594	ppb	3.41	500.00	
205 Tl	209	3	0.011	0.011	ppb	11.56	200.00	
208 Pb	209	3	0.220	0.220	ppb	2.07	500.00	
232 Th	209	3	0.011	0.011	ppb	85.25	200.00	
238 U	209	3	0.225	0.225	ppb	1.93	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3075234	1.72	3287783	93.5	59.5 - 120	
45 Sc	1	4007609	1.42	3997306	100.3	59.5 - 120	
45 Sc	2	754425	0.88	789072	95.6	59.5 - 120	
45 Sc	3	10761808	1.39	10993292	97.9	59.5 - 120	
72 Ge	1	1099767	1.03	1091377	100.8	59.5 - 120	
72 Ge	2	358719	0.98	362817	98.9	59.5 - 120	
72 Ge	3	2597345	0.87	2630124	98.8	59.5 - 120	
74 Ge	1	1570983	1.27	1537843	102.2	59.5 - 120	
74 Ge	2	535061	0.46	541515	98.8	59.5 - 120	
74 Ge	3	3601181	0.76	3611946	99.7	59.5 - 120	
115 In	1	5699006	0.98	5666378	100.6	59.5 - 120	
115 In	2	1557125	1.85	1602760	97.2	59.5 - 120	
115 In	3	9845157	1.37	9901388	99.4	59.5 - 120	
159 Tb	3	14006255	1.14	14162891	98.9	59.5 - 120	
209 Bi	3	17195996	0.82	17687444	97.2	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\030SMPL.D\030SMPL.D#
Date Acquired: Apr 14 2017 06:55 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-10
Misc Info:
Vial Number: 2310
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.021	0.021	ppb	17.64	200.00	
11 B	6	3	11.650	11.650	ppb	2.89	20.00	
27 Al	72	3	578.000	578.000	ppb	2.94	1000.00	
51 V	45	2	2.450	2.450	ppb	2.81	200.00	
52 Cr	45	2	13.740	13.740	ppb	1.70	200.00	
55 Mn	72	3	3.768	3.768	ppb	2.03	200.00	
56 Fe	45	1	189.700	189.700	ppb	1.28	1000.00	
59 Co	72	3	0.144	0.144	ppb	4.95	200.00	
60 Ni	45	2	2.971	2.971	ppb	1.39	500.00	
63 Cu	45	2	1.394	1.394	ppb	2.08	500.00	
66 Zn	72	3	5.376	5.376	ppb	3.67	1000.00	
75 As	45	2	0.665	0.665	ppb	2.15	200.00	
78 Se	45	1	0.609	0.609	ppb	2.65	500.00	
98 Mo	115	3	1.828	1.828	ppb	1.69	200.00	
107 Ag	115	3	0.004	0.004	ppb	28.52	50.00	
111 Cd	115	3	0.026	0.026	ppb	6.70	200.00	
118 Sn	115	3	-0.039	-0.039	ppb	37.97	200.00	
121 Sb	115	3	0.152	0.152	ppb	6.27	25.00	
125 Te	115	3	-0.025	-0.025	ppb	41.69	200.00	
133 Cs	115	3	0.088	0.088	ppb	1.37	200.00	
137 Ba	115	3	1.236	1.236	ppb	2.45	500.00	
205 Tl	209	3	0.010	0.010	ppb	17.34	200.00	
208 Pb	209	3	0.070	0.070	ppb	7.24	500.00	
232 Th	209	3	0.001	0.001	ppb	320.12	200.00	
238 U	209	3	0.109	0.109	ppb	4.51	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3089859	0.43	3287783	94.0	59.5 - 120	
45 Sc	1	3961778	0.37	3997306	99.1	59.5 - 120	
45 Sc	2	751155	1.81	789072	95.2	59.5 - 120	
45 Sc	3	10614072	0.92	10993292	96.6	59.5 - 120	
72 Ge	1	1080341	1.05	1091377	99.0	59.5 - 120	
72 Ge	2	351116	0.99	362817	96.8	59.5 - 120	
72 Ge	3	2560656	0.93	2630124	97.4	59.5 - 120	
74 Ge	1	1519654	1.28	1537843	98.8	59.5 - 120	
74 Ge	2	517503	1.17	541515	95.6	59.5 - 120	
74 Ge	3	3537154	1.75	3611946	97.9	59.5 - 120	
115 In	1	5626066	1.32	5666378	99.3	59.5 - 120	
115 In	2	1537399	0.49	1602760	95.9	59.5 - 120	
115 In	3	9656422	0.75	9901388	97.5	59.5 - 120	
159 Tb	3	13926331	0.23	14162891	98.3	59.5 - 120	
209 Bi	3	17325544	0.88	17687444	98.0	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\031SMPL.D\031SMPL.D#
Date Acquired: Apr 14 2017 06:58 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-11
Misc Info:
Vial Number: 2311
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.084	0.084	ppb	12.76	200.00	
11 B	6	3	16.630	16.630	ppb	4.26	20.00	
27 Al	72	3	2,016.000	2016.000	ppb	2.63	1000.00	OCAL
51 V	45	2	11.050	11.050	ppb	1.63	200.00	
52 Cr	45	2	33.690	33.690	ppb	1.82	200.00	
55 Mn	72	3	7.003	7.003	ppb	0.33	200.00	
56 Fe	45	1	1,047.000	1047.000	ppb	1.48	1000.00	OCAL
59 Co	72	3	0.590	0.590	ppb	1.61	200.00	
60 Ni	45	2	7.689	7.689	ppb	1.97	500.00	
63 Cu	45	2	5.219	5.219	ppb	0.37	500.00	
66 Zn	72	3	26.380	26.380	ppb	1.80	1000.00	
75 As	45	2	2.670	2.670	ppb	8.71	200.00	
78 Se	45	1	2.183	2.183	ppb	1.18	500.00	
98 Mo	115	3	2.954	2.954	ppb	0.75	200.00	
107 Ag	115	3	0.034	0.034	ppb	3.20	50.00	
111 Cd	115	3	0.098	0.098	ppb	17.17	200.00	
118 Sn	115	3	0.157	0.157	ppb	11.49	200.00	
121 Sb	115	3	0.287	0.287	ppb	1.03	25.00	
125 Te	115	3	-0.019	-0.019	ppb	30.63	200.00	
133 Cs	115	3	0.486	0.486	ppb	1.38	200.00	
137 Ba	115	3	7.405	7.405	ppb	1.70	500.00	
205 Tl	209	3	0.046	0.046	ppb	6.24	200.00	
208 Pb	209	3	0.516	0.516	ppb	1.43	500.00	
232 Th	209	3	0.389	0.389	ppb	5.75	200.00	
238 U	209	3	0.466	0.466	ppb	2.65	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3074908	1.54	3287783	93.5	59.5 - 120	
45 Sc	1	4010549	0.76	3997306	100.3	59.5 - 120	
45 Sc	2	748204	1.70	789072	94.8	59.5 - 120	
45 Sc	3	10625003	0.41	10993292	96.6	59.5 - 120	
72 Ge	1	1077281	0.37	1091377	98.7	59.5 - 120	
72 Ge	2	352043	2.20	362817	97.0	59.5 - 120	
72 Ge	3	2582698	1.51	2630124	98.2	59.5 - 120	
74 Ge	1	1540829	0.28	1537843	100.2	59.5 - 120	
74 Ge	2	518012	2.44	541515	95.7	59.5 - 120	
74 Ge	3	3557760	1.53	3611946	98.5	59.5 - 120	
115 In	1	5665244	0.99	5666378	100.0	59.5 - 120	
115 In	2	1536046	2.37	1602760	95.8	59.5 - 120	
115 In	3	9696869	1.02	9901388	97.9	59.5 - 120	
159 Tb	3	14109665	1.52	14162891	99.6	59.5 - 120	
209 Bi	3	17340552	1.05	17687444	98.0	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\032SMPL.D\032SMPL.D#
Date Acquired: Apr 14 2017 07:01 pm
Acq. Method: ACZ.M
Operator:
Sample Name: L36360-12
Misc Info:
Vial Number: 2312
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal. Update: Apr 14 2017 05:46 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	3	0.036	0.036	ppb	8.85	200.00	
11 B	6	3	13.310	13.310	ppb	5.27	20.00	
27 Al	72	3	1,071.000	1071.000	ppb	0.40	1000.00	OCAL
51 V	45	2	7.726	7.726	ppb	2.40	200.00	
52 Cr	45	2	18.720	18.720	ppb	1.18	200.00	
55 Mn	72	3	2.696	2.696	ppb	2.03	200.00	
56 Fe	45	1	434.400	434.400	ppb	2.64	1000.00	
59 Co	72	3	0.294	0.294	ppb	0.76	200.00	
60 Ni	45	2	3.459	3.459	ppb	3.57	500.00	
63 Cu	45	2	3.641	3.641	ppb	2.09	500.00	
66 Zn	72	3	11.980	11.980	ppb	0.97	1000.00	
75 As	45	2	2.325	2.325	ppb	5.34	200.00	
78 Se	45	1	1.606	1.606	ppb	5.63	500.00	
98 Mo	115	3	2.747	2.747	ppb	3.09	200.00	
107 Ag	115	3	0.032	0.032	ppb	2.34	50.00	
111 Cd	115	3	0.046	0.046	ppb	21.67	200.00	
118 Sn	115	3	0.051	0.051	ppb	4.71	200.00	
121 Sb	115	3	0.248	0.248	ppb	3.45	25.00	
125 Te	115	3	-0.011	-0.011	ppb	29.00	200.00	
133 Cs	115	3	0.206	0.206	ppb	4.44	200.00	
137 Ba	115	3	3.438	3.438	ppb	4.35	500.00	
205 Tl	209	3	0.022	0.022	ppb	5.47	200.00	
208 Pb	209	3	0.178	0.178	ppb	3.25	500.00	
232 Th	209	3	0.105	0.105	ppb	3.81	200.00	
238 U	209	3	0.232	0.232	ppb	2.83	200.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3079435	2.03	3287783	93.7	59.5 - 120	
45 Sc	1	4008314	2.68	3997306	100.3	59.5 - 120	
45 Sc	2	741818	1.25	789072	94.0	59.5 - 120	
45 Sc	3	10703598	1.07	10993292	97.4	59.5 - 120	
72 Ge	1	1086353	0.91	1091377	99.5	59.5 - 120	
72 Ge	2	348043	0.95	362817	95.9	59.5 - 120	
72 Ge	3	2596970	2.42	2630124	98.7	59.5 - 120	
74 Ge	1	1542302	0.72	1537843	100.3	59.5 - 120	
74 Ge	2	517486	1.66	541515	95.6	59.5 - 120	
74 Ge	3	3588905	1.57	3611946	99.4	59.5 - 120	
115 In	1	5651844	0.98	5666378	99.7	59.5 - 120	
115 In	2	1541161	0.78	1602760	96.2	59.5 - 120	
115 In	3	9784792	0.62	9901388	98.8	59.5 - 120	
159 Tb	3	14234108	1.60	14162891	100.5	59.5 - 120	
209 Bi	3	17648414	0.87	17687444	99.8	59.5 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

1 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\033_CCV.D\033_CCV.D#
Date Acquired: Apr 14 2017 07:04 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:46 pm
Sample Type: CCV
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	3	100.200	2.13	100.00	100.2	89 - 110	
11 B	6	3	10.200	3.55	10.00	102.0	89 - 110	
27 Al	72	3	494.400	0.19	500.00	98.9	89 - 110	
51 V	45	2	102.100	1.34	100.00	102.1	89 - 110	
52 Cr	45	2	101.000	1.41	100.00	101.0	89 - 110	
55 Mn	72	3	101.500	1.99	100.00	101.5	89 - 110	
56 Fe	45	1	511.900	1.51	500.00	102.4	89 - 110	
59 Co	72	3	100.500	1.84	100.00	100.5	89 - 110	
60 Ni	45	2	254.100	1.63	250.00	101.6	89 - 110	
63 Cu	45	2	252.700	1.83	250.00	101.1	89 - 110	
66 Zn	72	3	505.500	1.36	500.00	101.1	89 - 110	
75 As	45	2	100.700	1.90	100.00	100.7	89 - 110	
78 Se	45	1	250.300	0.25	250.00	100.1	89 - 110	
98 Mo	115	3	101.800	1.07	100.00	101.8	89 - 110	
107 Ag	115	3	24.380	1.32	25.00	97.5	89 - 110	
111 Cd	115	3	100.800	1.07	100.00	100.8	89 - 110	
118 Sn	115	3	99.640	0.66	100.00	99.6	89 - 110	
121 Sb	115	3	12.490	1.61	12.50	99.9	89 - 110	
125 Te	115	3	101.300	1.33	100.00	101.3	89 - 110	
133 Cs	115	3	101.500	1.87	100.00	101.5	89 - 110	
137 Ba	115	3	255.200	1.16	250.00	102.1	89 - 110	
205 Tl	209	3	102.700	1.71	100.00	102.7	89 - 110	
208 Pb	209	3	256.000	1.63	250.00	102.4	89 - 110	
232 Th	209	3	99.530	1.47	100.00	99.5	89 - 110	
238 U	209	3	102.000	1.30	100.00	102.0	89 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3013743	2.05	3287783	91.7	60 - 120	
45 Sc	1	3985174	0.97	3997306	99.7	60 - 120	
45 Sc	2	750438	0.33	789072	95.1	60 - 120	
45 Sc	3	10688692	0.65	10993292	97.2	60 - 120	
72 Ge	1	1082107	1.26	1091377	99.2	60 - 120	
72 Ge	2	350753	1.64	362817	96.7	60 - 120	
72 Ge	3	2596081	1.38	2630124	98.7	60 - 120	
74 Ge	1	1525715	0.65	1537843	99.2	60 - 120	
74 Ge	2	524550	1.50	541515	96.9	60 - 120	
74 Ge	3	3589186	0.17	3611946	99.4	60 - 120	
115 In	1	5689861	0.43	5666378	100.4	60 - 120	
115 In	2	1548096	0.72	1602760	96.6	60 - 120	
115 In	3	9706630	0.36	9901388	98.0	60 - 120	
159 Tb	3	14081420	0.58	14162891	99.4	60 - 120	
209 Bi	3	17412204	0.73	17687444	98.4	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\wg421213.b\034_CCB.D\034_CCB.D#
Date Acquired: Apr 14 2017 07:07 pm
Operator:
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ACZ.M
Calibration File: c:\ICPCHEM\1\CALIB\ACZ.C
Last Cal Update: Apr 14 2017 05:46 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	3	0.010 ppb	36.72	0.150	
11 B	6	3	-0.462 ppb	13.37	1.500	
27 Al	72	3	0.082 ppb	158.07	3.000	
51 V	45	2	0.048 ppb	65.15	0.600	
52 Cr	45	2	0.016 ppb	138.55	1.500	
55 Mn	72	3	-0.013 ppb	47.41	1.500	
56 Fe	45	1	0.143 ppb	18.37	12.000	
59 Co	72	3	0.009 ppb	15.15	0.150	
60 Ni	45	2	0.021 ppb	48.87	1.800	
63 Cu	45	2	-0.053 ppb	22.73	1.500	
66 Zn	72	3	0.033 ppb	89.16	6.000	
75 As	45	2	0.052 ppb	50.19	0.600	
78 Se	45	1	0.058 ppb	28.80	0.300	
98 Mo	115	3	0.028 ppb	14.24	1.500	
107 Ag	115	3	0.004 ppb	33.47	0.150	
111 Cd	115	3	0.007 ppb	98.79	0.300	
118 Sn	115	3	0.347 ppb	15.50	0.300	Fail
121 Sb	115	3	0.279 ppb	3.85	1.200	
125 Te	115	3	0.051 ppb	92.19	3.000	
133 Cs	115	3	0.014 ppb	7.38	0.600	
137 Ba	115	3	0.027 ppb	17.60	0.300	
205 Tl	209	3	0.017 ppb	8.94	0.300	
208 Pb	209	3	0.021 ppb	8.44	0.300	
232 Th	209	3	1.361 ppb	2.48	3.000	
238 U	209	3	0.023 ppb	6.87	0.300	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3	3041221	1.53	3287783	92.5	60 - 120	
45 Sc	1	3943435	1.76	3997306	98.7	60 - 120	
45 Sc	2	742884	0.25	789072	94.1	60 - 120	
45 Sc	3	10595092	0.85	10993292	96.4	60 - 120	
72 Ge	1	1081406	1.19	1091377	99.1	60 - 120	
72 Ge	2	352691	1.49	362817	97.2	60 - 120	
72 Ge	3	2586547	0.45	2630124	98.3	60 - 120	
74 Ge	1	1540388	1.85	1537843	100.2	60 - 120	
74 Ge	2	520408	1.36	541515	96.1	60 - 120	
74 Ge	3	3587828	1.02	3611946	99.3	60 - 120	
115 In	1	5650007	1.30	5666378	99.7	60 - 120	
115 In	2	1541918	1.46	1602760	96.2	60 - 120	
115 In	3	9812113	0.37	9901388	99.1	60 - 120	
159 Tb	3	14038070	1.10	14162891	99.1	60 - 120	
209 Bi	3	17419356	1.04	17687444	98.5	60 - 120	

Tune File# 1 c:\icpchem\1\7500\h2.u
Tune File# 2 c:\icpchem\1\7500\he.u
Tune File# 3 c:\icpchem\1\7500\norm.u

ISTD Ref File : C:\ICPCHEM\1\DATA\wg421213.b\003CALB.D\003CALB.D#

1 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

MS Total Hot Plate

QC List Type: I-X-THP
QCListMatClass: LIQUID
Bench Sheet List: I-X-THP
QC Ref: NOQC
Group ID: IP-G-DIG-THP-MS-1312
Method Ref: M3010 ICP-MS
SOP Ref: SOPII021

WG421140

ACZ Laboratories, Inc

Instrument ID: METALSDIG
Analyst: mfm
ACZ Dept: 30
Create Date: 04/13/2017 15:05
Start Date/Time: 04/13/2017 16:00
End Date/Time: 04/13/2017 20:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	AS MS 13 12	CD MS 13 12	SE MS 13 12	SCN Volume (mL)	Sample Volume (mL)	Final Volume (mL)	Comments
1	WG421039PBS	NONE	1312		04/13/17 16:00	✓	✓	✓		50	50	
2	WG421039LFB	MS170321-3	1312		04/13/17 16:16	✓	✓	✓	0.25	50	50	
3	L36360-01	SB-07GT (4-21)	1312		04/13/17 16:33	✓	✓	✓		50	50	
4	L36360-01MS	MS170321-3	1312		04/13/17 16:50	✓	✓	✓	0.25	50	50	
5	L36360-01MSD	MS170321-3	1312		04/13/17 17:07	✓	✓	✓	0.25	50	50	
6	L36360-01DUP	NONE	1312		04/13/17 17:24	✓	✓	✓		50	50	
7	L36360-02	TP-12 (7-9)	1312		04/13/17 17:41	✓	✓	✓		50	50	
8	L36360-03	TP-12 (7-9) DUPLICAT	1312		04/13/17 17:58	✓	✓	✓		50	50	
9	L36360-04	TP-14 (3-7)	1312		04/13/17 18:14	✓	✓	✓		50	50	
10	L36360-05	RC-01V1(5-15)	1312		04/13/17 18:31	✓	✓	✓		50	50	
11	L36360-06	RC-10V1(5-22)	1312		04/13/17 18:48	✓	✓	✓		50	50	
12	L36360-07	RC-03V1(20-30)	1312		04/13/17 19:05	✓	✓	✓		50	50	
13	L36360-08	RC-07V1(40-55)	1312		04/13/17 19:22	✓	✓	✓		50	50	
14	L36360-09	RC-11V1(30-40)	1312		04/13/17 19:39	✓	✓	✓		50	50	
15	L36360-10	RC-28V1(37-48)	1312		04/13/17 19:56	✓	✓	✓		50	50	
16	L36360-11	RC-40V1(22-37)	1312		04/13/17 20:13	✓	✓	✓		50	50	
17	L36360-12	RC-40V1(22-37) DUPLI	1312		04/13/17 20:29	✓	✓	✓		50	50	

Report Comments: _____

Internal Comments _____

AREV: MFM 4/14/17
Initials, Date

SREV: 4-14-17
Initials, Date

L36360-1705021415

4/14/2017 3:23:21 PM 42117

MS Total Hot Plate

QC List Type: I-X-THP
QCListMatClass: LIQUID
Bench Sheet List: I-X-THP
QC Ref: NOQC
Group ID: IP-G-DIG-THP-MS-1312
Method Ref: M3010 ICP-MS
SOP Ref: SOPII021

WG421140

ACZ Laboratories, Inc

Instrument ID: METALSDIG
Analyst: mfm
ACZ Dept: 30
Create Date: 04/13/2017 15:05
Start Date/Time: 04/13/2017 16:00
End Date/Time: 04/13/2017 20:30

Sample	Login Comments
L36360-01	ZIPLOCK || Delivered to soils.
L36360-01MS	ICPMS Spike
L36360-01MSD	ICPMS Spike
L36360-02	ZIPLOCK || Delivered to soils.
L36360-03	ZIPLOCK || Delivered to soils.
L36360-04	ZIPLOCK || Delivered to soils.
L36360-05	ZIPLOCK || Delivered to soils.
L36360-06	ZIPLOCK || Delivered to soils.
L36360-07	ZIPLOCK || Delivered to soils.
L36360-08	ZIPLOCK || Delivered to soils.
L36360-09	ZIPLOCK || Delivered to soils.
L36360-10	ZIPLOCK || Delivered to soils.
L36360-11	ZIPLOCK || Delivered to soils.
L36360-12	ZIPLOCK || Delivered to soils.
WG421039LFB	ICPMS LFB

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.

METALS PREP REVIEW CHECKLIST

AREV: MFM
Date: 4/14/17

SREV: [illegible]
Date: 4/14/17

Work Group: 421140
Sample Type: 1312
Prep Date: 4/13/17
Analyst: MFM

	N/A	Yes	No
1.) Are all dilutions correct in LIMS and documented on the bench sheet ?		✓	
2.) Is any sample prepared on dilution appropriately "D" qualified?	✓		
3.) Is the correct sub-sample type entered on the bench sheet (if different than SOP)?		✓	
4.) Are all initial and final sample volumes correct in LIMS ?		✓	
5.) Is the correct SCN entered for each spike and control standard (LFB or LCSW) ?		✓	
6.) Are all SCN volumes correct in LIMS ?		✓	
7.) Are all errors properly corrected (i.e. single-line crossout, dated & initialed) ?		✓	
8.) **FOR SREV**: QA/QC approval for initial training or 2 sets of initials for WG & LIMS ?		✓	

For any item listed above that is checked "No" state the problem and corrective action / resolution in the sections below.

QC/Sample ID	Problem	Corrective action

Disposable Vessel Lot #*: 1610138

Nitric acid PCN: 53267

Hydrochloric acid PCN: 53126

Digest Temp: 91 °C

Comments:

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

MS Total Hot Plate

QC List Type: I-X-THP
QCListMatClass: LIQUID
Bench Sheet List: I-X-THP
QC Ref: NOQC
Group ID: IP-G-DIG-THP-MS-1312
Method Ref: M3010 ICP-MS
SOP Ref: SOPII021

WG421140

ACZ Laboratories, Inc

Instrument ID: METALSDIG
Analyst: MFM
ACZ Dept: 30
Create Date: 04/13/2017 15:05
Start Date/Time: 4/13/17 4:00
End Date/Time: 8:30

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	AS MS 13 12	CD MS 13 12	SE MS 13 12	SCN Volume (mL)	Sample Volume (mL)	Final Volume (mL)	Comments
1	WG421039PBS	NONE				✓	✓	✓				
2	WG421039LFB	MS170321-3				✓	✓	✓				
3	L36360-01	SB-07GT (4-21)				✓	✓	✓				
4	L36360-01MS	MS170321-3				✓	✓	✓				
5	L36360-01MSD	MS170321-3				✓	✓	✓				
6	L36360-01DUP	NONE				✓	✓	✓				
7	L36360-02	TP-12 (7-9)				✓	✓	✓				
8	L36360-03	TP-12 (7-9) DUPLICAT				✓	✓	✓				
9	L36360-04	TP-14 (3-7)				✓	✓	✓				
10	L36360-05	RC-01V1(5-15)				✓	✓	✓				
11	L36360-06	RC-10V1(5-22)				✓	✓	✓				
12	L36360-07	RC-03V1(20-30)				✓	✓	✓				
13	L36360-08	RC-07V1(40-55)				✓	✓	✓				
14	L36360-09	RC-11V1(30-40)				✓	✓	✓				
15	L36360-10	RC-28V1(37-48)				✓	✓	✓				
16	L36360-11	RC-40V1(22-37)				✓	✓	✓				
17	L36360-12	RC-40V1(22-37) DUPLI				✓	✓	✓				

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

MS Total Hot Plate

QC List Type: I-X-THP
QCListMatClass: LIQUID
Bench Sheet List: I-X-THP
QC Ref: NOQC
Group ID: IP-G-DIG-THP-MS-1312
Method Ref: M3010 ICP-MS
SOP Ref: SOPII021

WG421140

ACZ Laboratories, Inc

Instrument ID: METALSDIG
Analyst:
ACZ Dept: 30
Create Date: 04/13/2017 15:05
Start Date/Time:
End Date/Time:

Sample	Login Comments
L36360-01	ZIPLOCK || Delivered to soils.
L36360-01MS	ICPMS Spike
L36360-01MSD	ICPMS Spike
L36360-02	ZIPLOCK || Delivered to soils.
L36360-03	ZIPLOCK || Delivered to soils.
L36360-04	ZIPLOCK || Delivered to soils.
L36360-05	ZIPLOCK || Delivered to soils.
L36360-06	ZIPLOCK || Delivered to soils.
L36360-07	ZIPLOCK || Delivered to soils.
L36360-08	ZIPLOCK || Delivered to soils.
L36360-09	ZIPLOCK || Delivered to soils.
L36360-10	ZIPLOCK || Delivered to soils.
L36360-11	ZIPLOCK || Delivered to soils.
L36360-12	ZIPLOCK || Delivered to soils.
WG421039LFB	ICPMS LFB

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG421140

Date Reported:	14-Apr-17
Run ID:	R1523470
Date Analyzed:	13-Apr-17
ICAL Workgroup:	
Instrument ID:	METALSDIG

WG421039PBS

Tag: Measured: 4/13/2017 4:00:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

WG421039LFB

Tag: Measured: 4/13/2017 4:16:52 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	SCN VOLUME	PREP	0.25	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

L36360-01

Tag: Measured: 4/13/2017 4:33:44 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-01MS

Tag: Measured: 4/13/2017 4:50:36 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	SCN VOLUME	PREP	0.25	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

L36360-01MSD

Tag: Measured: 4/13/2017 5:07:28 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	SCN VOLUME	PREP	0.25	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

L36360-01DUP

Tag: Measured: 4/13/2017 5:24:20 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	PREP	50	1		mL	++					
SREV	VOLUME, SAMPLE	PREP	50	1		mL	++					

L36360-02

Tag: Measured: 4/13/2017 5:41:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-03

Tag: Measured: 4/13/2017 5:58:04 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-04

Tag: Measured: 4/13/2017 6:14:56 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-05

Tag: Measured: 4/13/2017 6:31:48 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-06

Tag: Measured: 4/13/2017 6:48:40 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-07

Tag: Measured: 4/13/2017 7:05:32 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-08

Tag: Measured: 4/13/2017 7:22:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-09

Tag: Measured: 4/13/2017 7:39:16 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-10

Tag: Measured: 4/13/2017 7:56:08 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-11

Tag: Measured: 4/13/2017 8:13:00 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

L36360-12 **Tag:** **Measured:** **4/13/2017 8:29:52 PM**

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	FINAL VOLUME	-MS-1312	50	1		mL	++					
SREV	VOLUME, SAMPLE	-MS-1312	50	1		mL	++					

1312

WG421039

ACZ Laboratories, Inc

QC List Type: I-X-1312
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: CSTDX3-SP-1312
Group ID: SP-G-1312
Method Ref: M1312
SOP Ref: SOPSO013

Instrument ID: SOILSPREP
Analyst: rbt
ACZ Dept: 20
Create Date: 04/12/2017 13:03
Start Date/Time: 04/12/2017 14:00
End Date/Time: 04/13/2017 12:45

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Extraction Fluid pH (units)	Extraction Time (min)	Pre Filter pH (units)	Post Filter pH (units)	Time In	Time Out	Temperature (C)	Comments
1	WG421039CSTD1	NONE	as rec		04/12/17 14:00	0	0	10.06	0	10.06	10.06	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21	
2	WG421039CSTD2	NONE	as rec		04/12/17 15:02	0	0	7.03	0	7.01	7.01	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21	
3	WG421039CSTD3	NONE	as rec		04/12/17 16:04	0	0	2.03	0	2	2	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21	
4	WG421039ICV	PCN51722	as rec		04/12/17 17:06	0	0	4	0	3.94	3.94	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21	
5	WG421039PBS	NONE	as rec		04/12/17 18:08	0	2000	4.99	1080	4.91	5.1	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.3	
6	WG421039LFB	MS170209-3	as rec		04/12/17 19:10	0	2000	4.99	1080	4.91	5.1	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.3	
7	L36360-01	SB-07GT (4-21)	as rec		04/12/17 20:12	100	2000	4.99	1080	9.04	6.28	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.3	
8	L36360-01MS	MS170209-3	as rec		04/12/17 21:14	100	2000	4.99	1080	9.04	6.28	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.3	
9	L36360-01MSD	MS170209-3	as rec		04/12/17 22:16	100	2000	4.99	1080	9.04	6.28	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.3	
10	L36360-01DUP	NONE	as rec		04/12/17 23:18	100	2000	4.99	1080	9.06	7.14	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.4	
11	L36360-02	TP-12 (7-9)	as rec		04/13/17 0:20	100	2000	4.99	1080	9.27	8.9	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.4	
12	L36360-03	TP-12 (7-9) DUPLICAT	as rec		04/13/17 1:22	100	2000	4.99	1080	9.2	8.78	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.4	
13	L36360-04	TP-14 (3-7)	as rec		04/13/17 2:24	100	2000	4.99	1080	8.62	8.16	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.2	
14	L36360-05	RC-01V1(5-15)	as rec		04/13/17 3:26	100	2000	4.99	1080	9.08	7.6	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.4	
15	WG421039CCV1	PCN51722	as rec		04/13/17 4:28	0	0	4	0	3.99	3.99	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.3	
16	L36360-06	RC-10V1(5-22)	as rec		04/13/17 5:30	100	2000	4.99	1080	9.17	8.63	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.4	
17	L36360-07	RC-03V1(20-30)	as rec		04/13/17 6:32	100	2000	4.99	1080	7.54	4.71	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.4	
18	L36360-08	RC-07V1(40-55)	as rec		04/13/17 7:34	100	2000	4.99	1080	8.29	7.52	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.9	
19	L36360-09	RC-11V1(30-40)	as rec		04/13/17 8:36	100	2000	4.99	1080	8.95	7.68	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.5	
20	L36360-10	RC-28V1(37-48)	as rec		04/13/17 9:38	100	2000	4.99	1080	7.61	7.16	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.3	
21	L36360-11	RC-40V1(22-37)	as rec		04/13/17 10:41	100	2000	4.99	1080	9.06	6.59	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.6	
22	L36360-12	RC-40V1(22-37) DUPLI	as rec		04/13/17 11:43	100	2000	4.99	1080	9.04	7.38	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.1	
23	WG421039CCV2	PCN51722	as rec		04/13/17 12:45	0	0	4	0	4.01	4.01	4/12/2017 4:00:00 PM	4/13/2017 10:00:00 AM	21.3	

Report Comments: _____

Internal Comments _____

AREV: RBT 4/13/17
Initials, Date

SREV: SJD 4/14/17
Initials, Date

1312

WG421039

ACZ Laboratories, Inc

QC List Type: I-X-1312
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: CSTDX3-SP-1312
Group ID: SP-G-1312
Method Ref: M1312
SOP Ref: SOPSO013

Instrument ID: SOILSPREP
Analyst: rbt
ACZ Dept: 20
Create Date: 04/12/2017 13:03
Start Date/Time: 04/12/2017 14:00
End Date/Time: 04/13/2017 12:45

Sample	Login Comments
L36360-01	ZIPLOCK || Delivered to soils.
L36360-01MS	ICPMS Spike
L36360-01MSD	ICPMS Spike
L36360-02	ZIPLOCK || Delivered to soils.
L36360-03	ZIPLOCK || Delivered to soils.
L36360-04	ZIPLOCK || Delivered to soils.
L36360-05	ZIPLOCK || Delivered to soils.
L36360-06	ZIPLOCK || Delivered to soils.
L36360-07	ZIPLOCK || Delivered to soils.
L36360-08	ZIPLOCK || Delivered to soils.
L36360-09	ZIPLOCK || Delivered to soils.
L36360-10	ZIPLOCK || Delivered to soils.
L36360-11	ZIPLOCK || Delivered to soils.
L36360-12	ZIPLOCK || Delivered to soils.
WG421039LFB	ICPMS LFB

Report Comments: _____

Internal Comments _____

AREV: _____
Initials, Date

SREV: _____
Initials, Date

ACZ Laboratories, Inc.
Geochemistry Department
Data Review and Reagents

Data Reviewer: RBJ
Date: 4/13/17

Approved: HBD
Date: 4/14/17

Analyst: RBJ

Workgroup: WG421039

Analysis Date: 4/13/17

Sample type used: SO

Extraction / Digestion / Analysis / Prep / Calc:

	Yes	No	N/A
1. Is the raw data checked to the computer printout for transcription errors?	✓		
2. Is the %solid or TS attached for dilution factors?			✓
3. Were proper volumes of reagents used per final volume?	✓		✓
4. Was the proper sub-sample used (as received, <2000, <500, <250, dry, R&P)?	✓		
5.Were the dilution factor calculation checked (final volume, weight, %solid)?			✓
6. Did the RPD pass?	✓		✓
7. Does all the spike information correlate with each other?	✓		
8. Is the appropriate spike in the computer-designated line?	✓		
9. Are all errors properly corrected (single-line crossout, dated & initialed)?	✓		
10. Is the standard/reagent information complete and current?	✓		
11. Is your instrument calibration passing (and included in the data package if needed)?	✓		
FOR SREV: QA/QC approval for initial training or 2 sets of initials for WG & LIMS?	✓		

Standard/Reagent/Equipment*	PCN/SCN/LOT #*	Expiration Date
1312 #2	S170228.1	11/20/17
1312 #2	S170412-2	11/20/17
Buffer 2	S0715	1/31/18
7	49402	7/31/17
1 10	51935	6/30/18

*Workgroup documentation must include the lot number(s) of all disposable vessels used for volumetric measurements.

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # WG421039

Sample # PB5ILPB

Preliminary Evaluations

Sample is 100 % Solid

Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? _____

> 3.1 cm² ? _____

Method of Reduction: _____

Extraction

Weight of Sample (100g min) Ø

Extraction Fluid Used #2

SCN of Extraction Fluid S1702289.1 (PB 4/12/17)

pH of Extraction Fluid 3.499

Vol. of Extraction Fluid (mL) 2000

Time in Extractor 4:00p

Time out of Extractor 10:00a

} 18 Hrs ± 2 Hrs

High Temperature (C) 24

Low Temperature (C) 23

} 23° C ± 2° C

Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

Proceed to Extraction

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # WEH21039

4/12/17 RB

Sample # L36360-01-172 07

Preliminary Evaluations

Sample is 100 % Solid

Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? No

> 3.1 cm² ? _____

Method of Reduction: None

Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

Proceed to Extraction

Extraction

Weight of Sample (100g min) 100

Extraction Fluid Used #2

SCN of Extraction Fluid S170228-1

pH of Extraction Fluid 4.99

Vol. of Extraction Fluid (mL) 2000

Time in Extractor 4:00p

Time out of Extractor 10:00

} 18 Hrs ± 2 Hrs

High Temperature (C) 24

Low Temperature (C) 23

} 23° C ± 2° C

Initial liquid phase added back before filtration? _____

Comments: _____

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

NON-VOLATILE 1312 ANALYSIS

WG # WG421039

Sample # L363600-08-12

Preliminary Evaluations

Sample is 100 % Solid

Proceed to Particle Size / Surface Area Determination

Sample is Multiphase

Liquid-Solid Separation

Filter Weight: _____

Filtrate Container Weight: _____

Sample Weight (100g min): _____

Weight of Filtrate: _____

Weight of Solid _____

Percent Solid _____

% Solid = (Weight of Solid / Total Weight of Sample) x 100

Sample is < 0.5% solid

The liquid filtrate is analyzed as the extract.

Sample is > 0.5% solid

Particle Size / Surface Area Determination

> 9.5 mm (sieve) ? No

> 3.1 cm² ? _____

Method of Reduction: None

Extraction Fluid Determination

Sample Description _____

Sampling Location _____

Testing for Cyanide _____

Proceed to Extraction

Extraction

Weight of Sample (100g min) 100

Extraction Fluid Used #2

SCN of Extraction Fluid S1170412.2

pH of Extraction Fluid 4.99

Vol. of Extraction Fluid (mL) 2000

Time in Extractor 4:00p

Time out of Extractor 10:00

18 Hrs ± 2 Hrs

High Temperature (C) 24

Low Temperature (C) 23

23° C ± 2° C

Initial liquid phase added back before filtration? _____

Comments: _____

1312

WG421039

ACZ Laboratories, Inc

QC List Type: I-X-1312
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: CSTDX3-SP-1312
Group ID: SP-G-1312
Method Ref: M1312
SOP Ref: SOPSO013

Instrument ID: SOILSPREP
Analyst: RA
ACZ Dept: 20
Create Date: 04/12/2017 13:03
Start Date/Time: 4/12/17 2:00p
End Date/Time: 4/13/17 12:45p

SEQ	ACZ ID	Client ID	SubSX	Pri	Analysis Date	Sample Weight (g)	Soil Extract Volume (mL)	Extraction Fluid pH (units)	Extraction Time (min) RA 4/13/17	Pre Filter pH (units)	Post Filter pH (units)	Time In	Time Out	Temperature (C)	Comments
1	WG421039CSTD1	NONE						10.00		10.06				21.0	
2	WG421039CSTD2	NONE						7.03		7.01				21.0	
3	WG421039CSTD3	NONE						2.03		2.00				21.0	
4	WG421039ICV	PCN51722						4.00		3.94				21.0	
5	WG421039PBS	NONE						4.99	~~4.91~~	4.91	5.10			21.3	
6	WG421039LFB	MS170209-3								↓	↓			21.3	
7	L36360-01	SB-07GT (4-21)								9.04	6.28			21.3	
8	L36360-01MS	MS170209-3								↓	↓			↓	
9	L36360-01MSD	MS170209-3													
10	L36360-01DUP	NONE								9.06	7.14			21.4	
11	L36360-02	TP-12 (7-9)								9.27	8.90			21.4	
12	L36360-03	TP-12 (7-9) DUPLICAT								9.20	8.78			21.4	
13	L36360-04	TP-14 (3-7)								8.62	8.16			21.2	
14	L36360-05	RC-01V1(5-15)								9.08	7.60			21.4	
15	WG421039CCV1	PCN51722						4.00		3.99				21.3	
16	L36360-06	RC-10V1(5-22)						4.99		9.17	8.63			21.4	
17	L36360-07	RC-03V1(20-30)								7.54	4.71			21.4	
18	L36360-08	RC-07V1(40-55)								~~7.~~ 8.29	7.52			21.9	
19	L36360-09	RC-11V1(30-40)								8.95	7.68			21.5	
20	L36360-10	RC-28V1(37-48)								7.61	7.16			21.3	
21	L36360-11	RC-40V1(22-37)								9.06	6.59			21.6	
22	L36360-12	RC-40V1(22-37) DUPLI								9.04	7.38			21.1	
23	WG421039CCV2	PCN51722						4.00		4.01				21.3	

RA 4/13/17

Report Comments: _____

AREV: _____
Initials, Date

Internal Comments _____

SREV: _____
Initials, Date

1312

WG421039

ACZ Laboratories, Inc

QC List Type: I-X-1312
QCListMatClass: SOLID
Bench Sheet List: I-ICP
QC Ref: CSTDX3-SP-1312
Group ID: SP-G-1312
Method Ref: M1312
SOP Ref: SOPSO013

Instrument ID: SOILSPREP
Analyst:
ACZ Dept: 20
Create Date: 04/12/2017 13:03
Start Date/Time:
End Date/Time:

Sample	Login Comments
L36360-01	ZIPLOCK || Delivered to soils.
L36360-01MS	ICPMS Spike
L36360-01MSD	ICPMS Spike
L36360-02	ZIPLOCK || Delivered to soils.
L36360-03	ZIPLOCK || Delivered to soils.
L36360-04	ZIPLOCK || Delivered to soils.
L36360-05	ZIPLOCK || Delivered to soils.
L36360-06	ZIPLOCK || Delivered to soils.
L36360-07	ZIPLOCK || Delivered to soils.
L36360-08	ZIPLOCK || Delivered to soils.
L36360-09	ZIPLOCK || Delivered to soils.
L36360-10	ZIPLOCK || Delivered to soils.
L36360-11	ZIPLOCK || Delivered to soils.
L36360-12	ZIPLOCK || Delivered to soils.
WG421039LFB	ICPMS LFB

Report Comments:

Internal Comments

AREV:
Initials, Date

SREV:
Initials, Date

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Workgroup Review and Approval

WG421039

Date Reported:	14-Apr-17
Run ID:	R1523164
Date Analyzed:	12-Apr-17
ICAL Workgroup:	
Instrument ID:	SOILSPREP

WG421039ICV

Tag: Measured: 4/12/2017 5:06:09 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4	1		units	++					
SREV	EXTRACTION TIME	PREP	0	1		min	++					
SREV	POST FILTER PH	PREP	3.94	1		units	++					
SREV	PRE FILTER PH	PREP	3.94	1		units	++					
SREV	TEMPERATURE	PREP	21	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	0	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	1		g	++					

WG421039PBS

Tag: Measured: 4/12/2017 6:08:12 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4.99	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	5.1	1		units	++					
SREV	PRE FILTER PH	PREP	4.91	1		units	++					
SREV	TEMPERATURE	PREP	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	1		g	++					

WG421039LFB

Tag: Measured: 4/12/2017 7:10:15 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4.99	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	5.1	1		units	++					
SREV	PRE FILTER PH	PREP	4.91	1		units	++					
SREV	TEMPERATURE	PREP	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	1		g	++					

L36360-01

Tag:

Measured: 4/12/2017 8:12:18 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	6.28	1		units	++					
SREV	PRE FILTER PH	X-1312	9.04	1		units	++					
SREV	TEMPERATURE	X-1312	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-01MS

Tag:

Measured: 4/12/2017 9:14:21 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4.99	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	6.28	1		units	++					
SREV	PRE FILTER PH	PREP	9.04	1		units	++					
SREV	TEMPERATURE	PREP	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	100	1		g	++					

L36360-01MSD

Tag:

Measured: 4/12/2017 10:16:24 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4.99	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	6.28	1		units	++					
SREV	PRE FILTER PH	PREP	9.04	1		units	++					
SREV	TEMPERATURE	PREP	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	100	1		g	++					

L36360-01DUP

Tag:

Measured: 4/12/2017 11:18:27 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4.99	1		units	++					
SREV	EXTRACTION TIME	PREP	1080	1		min	++					
SREV	POST FILTER PH	PREP	7.14	1		units	++					
SREV	PRE FILTER PH	PREP	9.06	1		units	++					
SREV	TEMPERATURE	PREP	21.4	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	100	1		g	++					

L36360-02

Tag:

Measured: 4/13/2017 12:20:30 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	8.9	1		units	++					
SREV	PRE FILTER PH	X-1312	9.27	1		units	++					
SREV	TEMPERATURE	X-1312	21.4	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-03

Tag:

Measured: 4/13/2017 1:22:33 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++				TA	
SREV	EXTRACTION TIME	X-1312	1080	1		min	++				TA	
SREV	POST FILTER PH	X-1312	8.78	1		units	++				TA	
SREV	PRE FILTER PH	X-1312	9.2	1		units	++				TA	
SREV	TEMPERATURE	X-1312	21.4	1		C	++	0.1	0.1		TA	
SREV	TIME IN	X-1312		1			++				TA	
SREV	TIME OUT	X-1312		1			++				TA	
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++				TA	
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++				TA	

L36360-04

Tag:

Measured: 4/13/2017 2:24:36 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	8.16	1		units	++					
SREV	PRE FILTER PH	X-1312	8.62	1		units	++					
SREV	TEMPERATURE	X-1312	21.2	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-05

Tag:

Measured: 4/13/2017 3:26:39 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	7.6	1		units	++					
SREV	PRE FILTER PH	X-1312	9.08	1		units	++					
SREV	TEMPERATURE	X-1312	21.4	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

WG421039CCV1

Tag: Measured: 4/13/2017 4:28:42 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4	1		units	++					
SREV	EXTRACTION TIME	PREP	0	1		min	++					
SREV	POST FILTER PH	PREP	3.99	1		units	++					
SREV	PRE FILTER PH	PREP	3.99	1		units	++					
SREV	TEMPERATURE	PREP	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	0	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	1		g	++					

L36360-06

Tag: Measured: 4/13/2017 5:30:45 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	8.63	1		units	++					
SREV	PRE FILTER PH	X-1312	9.17	1		units	++					
SREV	TEMPERATURE	X-1312	21.4	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-07

Tag: Measured: 4/13/2017 6:32:48 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	4.71	1		units	++					
SREV	PRE FILTER PH	X-1312	7.54	1		units	++					
SREV	TEMPERATURE	X-1312	21.4	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-08

Tag: Measured: 4/13/2017 7:34:51 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	7.52	1		units	++					
SREV	PRE FILTER PH	X-1312	8.29	1		units	++					
SREV	TEMPERATURE	X-1312	21.9	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-09

Tag:

Measured: 4/13/2017 8:36:54 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	7.68	1		units	++					
SREV	PRE FILTER PH	X-1312	8.95	1		units	++					
SREV	TEMPERATURE	X-1312	21.5	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-10

Tag:

Measured: 4/13/2017 9:38:57 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	7.16	1		units	++					
SREV	PRE FILTER PH	X-1312	7.61	1		units	++					
SREV	TEMPERATURE	X-1312	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-11

Tag:

Measured: 4/13/2017 10:41:00 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	6.59	1		units	++					
SREV	PRE FILTER PH	X-1312	9.06	1		units	++					
SREV	TEMPERATURE	X-1312	21.6	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

L36360-12

Tag:

Measured: 4/13/2017 11:43:03 AM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	X-1312	4.99	1		units	++					
SREV	EXTRACTION TIME	X-1312	1080	1		min	++					
SREV	POST FILTER PH	X-1312	7.38	1		units	++					
SREV	PRE FILTER PH	X-1312	9.04	1		units	++					
SREV	TEMPERATURE	X-1312	21.1	1		C	++	0.1	0.1			
SREV	TIME IN	X-1312		1			++					
SREV	TIME OUT	X-1312		1			++					
SREV	VOLUME, SOIL EXTRACT	X-1312	2000	1		mL	++					
SREV	WEIGHT, SAMPLE	X-1312	100	1		g	++					

WG421039CCV2

Tag:

Measured: 4/13/2017 12:45:06 PM

Status	Parm_Stored	Type	Value	Dil	Qual	Units	Appv	MDL	PQL	Text Value	Ext Qual	Signal
SREV	EXTRACTION FLUID PH	PREP	4	1		units	++					
SREV	EXTRACTION TIME	PREP	0	1		min	++					
SREV	POST FILTER PH	PREP	4.01	1		units	++					
SREV	PRE FILTER PH	PREP	4.01	1		units	++					
SREV	TEMPERATURE	PREP	21.3	1		C	++	0.1	0.1			
SREV	TIME IN	DATE		1			++					
SREV	TIME OUT	DATE		1			++					
SREV	VOLUME, SOIL EXTRACT	PREP	0	1		mL	++					
SREV	WEIGHT, SAMPLE	PREP	0	1		g	++					

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Run Log by Workgroup

Monsanto Company

Project ID: L36360

Metals Analysis

WG421213 **ICPMS Dissolved 1312**

Sample	Date	SCN	As	Cd	Se
WG421213ICV	04/14/17 17:47	MS170404-2	X	X	X
WG421213ICB	04/14/17 17:50		X	X	X
WG421213ICSA	04/14/17 17:53		X	X	X
WG421213ICSAB	04/14/17 17:56	MS170303-2	X	X	X
WG421039PBS	04/14/17 18:03		X	X	X
WG421039LFB	04/14/17 18:06	MS170321-3	X	X	X
L36360-01	04/14/17 18:09		X	X	X
L36360-01MS	04/14/17 18:12	MS170321-3	X	X	X
L36360-01MSD	04/14/17 18:15	MS170321-3	X	X	X
L36360-01DUP	04/14/17 18:18		X	X	X
L36360-02	04/14/17 18:21		X	X	X
L36360-03	04/14/17 18:24		X	X	X
L36360-04	04/14/17 18:27		X	X	X
L36360-05	04/14/17 18:30		X	X	X
WG421213CCV1	04/14/17 18:33	MS170322-4	X	X	X
WG421213CCB1	04/14/17 18:36		X	X	X
L36360-05SDL	04/14/17 18:39		X	X	X
L36360-06	04/14/17 18:42		X	X	X
L36360-07	04/14/17 18:46		X	X	X
L36360-08	04/14/17 18:49		X	X	X
L36360-09	04/14/17 18:52		X	X	X
L36360-10	04/14/17 18:55		X	X	X
L36360-11	04/14/17 18:58		X	X	X
L36360-12	04/14/17 19:01		X	X	X
WG421213CCV2	04/14/17 19:04	MS170322-4	X	X	X
WG421213CCB2	04/14/17 19:07		X	X	X

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID: L36360
Date Received: 04/04/2017 09:40
Received By:
Date Printed: 4/4/2017

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?		X	
The 'sampled by' field on the Chain of Custody was not completed.			
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

The 'Relinquished By' field on the COC was not completed. The project manager is contacting the client.

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
UNKNOWN		NA		

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Monsanto Company
4512184569

ACZ Project ID:	L36360
Date Received:	04/04/2017 09:40
Received By:	
Date Printed:	4/4/2017

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. L36360

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett	Address: Monsanto Company
Company: P4 Production, LLC	1853 Highway 34, Soda Springs, ID 83776
E-mail: molly.prickett@monsanto.com	Telephone: 208-547-1395 / 208-547-1437

Copy of Report to:

Name: Leah Wolf Martin, Rocky Benedetti	E-mail: leah@wolfmartininc.com
Company: Wolf Marin Inc., STRATA Inc.	Telephone: 303-475-1135

Invoice to:

Name: Molly Prickett	Address: Monsanto Company
Company: P4 Production, LLC	1853 Highway 34, Soda Springs, ID 83776
E-mail: molly.prickett@monsanto.com	Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☒ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: _____ **Sampler's Site Information** **State**_____ **Zip code**_____ **Time Zone**_____

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that mislabeling the time/date/location, or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #:

PO#: PO 4512184569

Reporting state for compliance testing: Idaho

Check box if samples include NRC licensed material? ☐

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	SPLP (As, Cd, Se)							
SB-07GT (4-21)		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
TP-12 (7-9)		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
TP-12 (7-9) duplicate		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
TP-14 (3-7)		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
RC-01V1 (5-15)		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
RC-10V1 (5-22		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
RC-03V1 (20-30)		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
RC-07V1 (40-55)		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
RC-11V1 (30-40)		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐
RC-28V1 (37-48)		SO	1 ea	☒	☐	☐	☐	☐	☐	☐	☐

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

See email with lab no. for these samples from whole rock metals and ABA analyses

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
		DSP	4/4/17
			4/4/17 0938

FRMAD050.03.14.13 White - Return with sample. Yellow - Retain for your records.

L36360 Chain of Custody

ACZ Laboratories, Inc. L36360

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Molly Prickett
Company: P4 Production, LLC
E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83776
Telephone: 208-547-1395 / 208-547-1437

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E-mail: molly.prickett@monsanto.com
Address: Monsanto Company
1853 Highway 34, Soda Springs, ID 83776
Telephone: 208-547-1395 / 208-547-1437

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: _____ **Sampler's Site Information** **State**_____ **Zip code**_____ **Time Zone**_____

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that mislabeling the time/date/location, or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #:
PO#: PO 4512184569
Reporting state for compliance testing: Idaho
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	SPLP (As, Cd, Se)							
RC-40V1 (22-37)		SO	1 ea	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
RC-40V1 (22-37) duplicate		SO	1 ea	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

See email with lab no. for these samples from whole rock metals and ABA analyses

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
		ATP	9/4/17 0830

FRMAD050.03.14.13 White - Return with sample. Yellow - Retain for your records.

Laboratory Data Consultants, Inc.

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Stantec.
2890 East Cottonwood Parkway Suite 300
Salt Lake City, UT 84121
ATTN: Ms. Betty VanPelt

April 14, 2017

SUBJECT: Monsanto, P4 Background, Data Validation

Dear Ms. VanPelt,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on March 22, 2017. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #38325:

SDG #	**Fraction**
L34445, L34446 L34674, L35520	Metals by ICPMS SW-846 Method 6020

The data verification was performed under Stage 2B & 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- QAPP Addendum, MWH 2009, to the project SAP, April, 2004
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

1,513 pages-SF EDD

Attachment 1

90/10 2B/4

LDC #38325 (MWH Americas, Inc.-Salt Lake City, UT / Monsanto, P4 Background)

LDC	SDG#	DATE REC'D	(3) DATE DUE	(5) Metals (6020)		(4) Metals (6020)		3 SPLP Metals (6020)																															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	L34445	03/22/17	04/12/17	0	3	-	-	-	-																														
A	L34446	03/22/17	04/12/17	0	1	-	-	-	-																														
B	L34446	03/22/17	04/12/17	-	-	0	8	-	-																														
B	L34446	03/22/17	04/12/17	-	-	0	1	-	-																														
C	L34674	03/22/17	04/12/17	0	10	0	3	-	-																														
C	L34674	03/22/17	04/12/17	0	1	0	0	-	-																														
D	L35520	03/22/17	04/12/17	-	-	-	-	0	3																														
D	L35520	03/22/17	04/12/17	-	-	-	-	0	1																														
Total	T/CR			0	15	0	12	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31

Shaded cells indicate Stage 4 review (all other cells are Stage 2B review and calibration data validation only). These sample counts do not include MS/MSD, and DUPs.

s:\Stantec\Monsanto P4\38325ST.wpd

Report# 38325A4a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Monsanto, P4 Production LLC

Report Date: April 5, 2017

Matrix: Water

Parameters: Metals by ICPMS SW-846 Method 6020

Validation Level: Stage 2B & 4

Laboratory: ACZ Laboratories, Inc.

Sample Delivery Group (SDG): L34445

Sample Identification	Collection Date	Laboratory Sample Identification
TP-6_7_9 (2-5)**	08/24/16	L34445-01**
TP-12 (2-4)	08/25/16	L34445-02
TP-15_16 (2-13)	08/25/16	L34445-03
TP-20 (1-4)	08/25/16	L34445-04

**Indicates sample underwent Stage 4 review.

Introduction

This data review covers 4 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analysis was performed per the EPA SW 846 Method noted below:

- Method 6020 ICPMS: Arsenic, Cadmium, Molybdenum, Selenium, and Uranium.

This review follows the specific guidance in the QAPP Addendum (MWH 2009) to the project SAP (April, 2004) using the intent of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as applicable to the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were reviewed for a minimum of 10% of the Sample Delivery Groups (SDGs) or laboratory data package deliverables associated with this sampling event as specified in the QAPP Addendum. This package includes raw data review.

The following are definitions of the data qualifiers:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximated concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

R The result is unusable. The sample result is rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

The following are not data qualifiers but are provided for the purpose of evaluating the laboratory's performance:

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

The following "Reason Codes" will be applied as applicable to the validated data:

1 Holding Time
2 Sample Preservation (including receipt temperature)
3 Sample Custody
4 Missing Deliverable
5 ICPMS Tune
6 Initial Calibration
7 Initial Calibration Verification
8 Continuing Calibration Verification
9 Low-Level Calibration Check Sample
10 Calibration Blank
11 Laboratory or Preparation Blank
12 ICPMS or ICP Interference Check Standard
13 Laboratory Control Sample or Laboratory Control Sample Duplicate Recovery
14 Laboratory Control Sample Precision
15 Laboratory Duplicate Precision
16 Matrix Spike or Matrix Spike Duplicate Recovery
17 Matrix Spike/Matrix Spike Duplicate Precision
18 ICPMS or ICP Serial Dilution
19 ICPMS Internal Standard
20 Field Replicate Precision
21 Equipment Rinsate Blank
22 Linear Range Exceeded
23 Other reason
26 Source Water Blank

I(a). Deliverables and Chain-of-Custody Documentation

All deliverables were present and complete including the Case Narrative with full explanation of corrective actions and all package deliverables defined in the project SAP.

The chain-of-custodies were complete for sample identification, matrix, methods, preservation, dates and times of collection, dates and times of relinquishment and receipt. Any corrections performed properly (i.e., crossed-out with a single line; correction visible, neat, and clear; and with initials of individual making correction).

I(b). Preservation and Holding Times

All technical holding time requirements were met: 6 months for water and soil (note NIST soil standard reference samples are valid for up to 3 years).

All samples were received intact with proper preservation (pH < 2 for water).

II. ICP-MS Tune Analysis

ICP-MS tuning was performed by the laboratory. All isotopes in the tuning solution mass resolution were within 0.1 amu. Resolutions are < 0.9 amu full width at 10% peak height.

The percent relative standard deviations (%RSD) of all isotopes in the tuning solution were less than or equal to 5.0%.

III. Calibration

An initial calibration was performed each day of analysis. The frequency and analysis criteria (90-110%) of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

The low-level initial calibration verification (LLICV) and low-level continuing calibration verifications (LLCCVs) standard frequency and limits (70-130%) were met. Limit for maganese is 50 -150%. Only undetected data, or values < 2 x RL are qualified or impacted.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

ICP interference check samples were reviewed for each analyte as applicable. Percent recovery (%R) of the ICSAB were within the QC limits of 80-120%.

VI. Laboratory Control Sample (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 80-120% limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPDs) were within the acceptance criteria of ≤ 20% for water or ≤ 35% for soil. For low level results, <5 x RL, a difference of ± 1 x RL is allowed for water and ± 2 x RL for soils.

VIII. Spike Sample Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 75-125% and relative percent differences (RPD) were within 20% limits (35% soils).

IX. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria of ±10% difference for values greater than 50 times the lower limit of quantitation (i.e., the method detection limits [MDLs]) were met.

Selenium results were outside the QC limits; results were not qualified since the original sample (TP-12 (7-9)) was less than 50 times the MDL.

X. ICP-MS Internal Standards

All internal standard percent recoveries (%R) were within 70-130% or a 2x dilution was run with acceptable recoveries.

XI. Field Replicates

Field replicate samples were collected in duplicate. Control limit(s) were not established in the SAP since the average of the replicate samples is used as the final value for the field location. Results of field replicate samples or other project samples were not qualified based on the precision of field replicate samples.

XII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2B criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

Metals - Data Qualification Summary - SDG L34445

No Sample Data Qualified in this SDG

Metals - Laboratory Blank Data Qualification Summary - SDG L34445

No Sample Data Qualified in this SDG

Metals - Field Blank Data Qualification Summary - SDG L34445

No Sample Data Qualified in this SDG

LDC #: 38325A4a

VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 4/4/17

SDG #: L34445

Page: 1 of 1

Laboratory: ACZ Laboratories, Inc.

Reviewer: JB

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	A	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	A	TP-12 (7-9) MSID [From SDG L34446]
VIII.	Duplicate sample analysis	N	
IX.	Serial Dilution	A	Se OK = < 50 x MDL
X.	Laboratory control samples	A	LCS ID
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	
XIII.	Sample Result Verification	A	Not reviewed for Stage 2B validation.
XIV.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	TP-6_7_9 (2-5)**	L34445-01**	Soil	08/24/16
2	TP-12 (2-4)	L34445-02	Soil	08/25/16
3	TP-15_16 (2-13)	L34445-03	Soil	08/25/16
4	TP-20 (1-4)	L34445-04	Soil	08/25/16
5				
6				
7				
8				
9				
10				
11				
12				

Notes:

DC #: 38325A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: HB
2nd Reviewer:

Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?			✓	
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

DC #: 38325A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			ok by < 50xMDL
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 38325A4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: JB
2nd reviewer: a

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-4	SOIL	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, 4
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___

Comments: Mercury by CVAA if performed

LDC #: 38325A4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: JB
2nd Reviewer: a

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
	ICP (Initial calibration)						
	ICP/MS (Initial calibration)	U	52.458 ug/L	0.05 mg/L	105%	105%	Y
	CVAA (Initial calibration)						
	ICP (Continuing calibration)						
	ICP/MS (Continuing calibration)	Se	254.09 ug/L	0.25025 mg/L	102%	102%	Y
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 38325A4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: YB
2nd Reviewer: a

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

%D = |I-SDR| / I x 100 Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	~~Mo~~ Se YB	21.443 µg/L	0.02002 mg/L ~~1.02502 mg/L~~ YB	107%	107% ~~98%~~ YB	Y
LCS	Laboratory control sample	Cd	17.18 x 5000 = 85900 µg/kg	87.6 mg/kg	98%	NR (98%)	Y
MS	Matrix spike	As	SR = 12 (SSR-SR) 78.47 x 510 ÷ 1000 = 40.1217 mg/kg - 12 = 28.1217 mg/kg	25.551 mg/kg	110%	110%	Y
MSD	Duplicate	As	82.18 x 510 ÷ 1000 = 41.9118 mg/kg	~~Found:~~ 40.1217 mg/kg	4 RPD	4 RPD	Y
SD	ICP serial dilution	Cd	0.54 x 505 ÷ 1000 = 0.2725 x 5 = 1.3635 mg/kg	original = 1.41 mg/kg	3 RPD	4 RPD	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

(NR = Not Reported / Calculated in QC Summary Results found in Workgroup Review; Approval Section)

TOTCLC.4SW

LDC #: 38325A4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JB
2nd reviewer: G

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for Cd were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

From Raw Data Cd = 29.35 ug/L x 505 = 14821.75 ug/Kg
= 14.821 mg/Kg

#	Sample ID	Analyte	Reported Concentration (mg/Kg)	Calculated Concentration (mg/Kg)	Acceptable (Y/N)
	1	As	8.6	8.6	Y
	1	Cd	14.8	14.8	Y
	1	Mo	4.0	4.0	Y
	1	Se	2.14	2.14	Y
	1	U	11.2	11.2	Y

Note:

Report# 38325B4a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Monsanto, P4 Production LLC

Report Date: April 5, 2017

Matrix: Water

Parameters: Metals by ICPMS SW-846 Method 6020

Validation Level: Stage 2B & 4

Laboratory: ACZ Laboratories, Inc.

Sample Delivery Group (SDG): L34446

Sample Identification	Collection Date	Laboratory Sample Identification
SB-01_02GT (1.5-6.5)	09/09/16	L34446-01
SB-07GT (4-21)	09/21/16	L34446-02
SB-03_TP-3 (1-5)	09/10/16	L34446-03
TP-6 (7-10)**	08/26/16	L34446-04**
TP-8 (3.5-13)	08/24/16	L34446-05
TP-9 (7-14)	08/24/16	L34446-06
TP-12 (7-9)	08/25/16	L34446-07
TP-14 (3-7)	08/25/16	L34446-08
TP-20 (12-14)	08/25/16	L34446-09
TP-12 (7-9)MS	08/25/16	L34446-07MS
TP-12 (7-9)MSD	08/25/16	L34446-07MSD

**Indicates sample underwent Stage 4 review.

Introduction

This data review covers 11 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analysis was performed per the EPA SW 846 Method noted below:

- Method 6020 ICPMS: Arsenic, Cadmium, Selenium, and Uranium.

This review follows the specific guidance in the QAPP Addendum (MWH 2009) to the project SAP (April, 2004) using the intent of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as applicable to the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were reviewed for a minimum of 10% of the Sample Delivery Groups (SDGs) or laboratory data package deliverables associated with this sampling event as specified in the QAPP Addendum. This package includes raw data review.

The following are definitions of the data qualifiers:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximated concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

R The result is unusable. The sample result is rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

The following are not data qualifiers but are provided for the purpose of evaluating the laboratory's performance:

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

The following "Reason Codes" will be applied as applicable to the validated data:

1 Holding Time
2 Sample Preservation (including receipt temperature)
3 Sample Custody
4 Missing Deliverable
5 ICPMS Tune
6 Initial Calibration
7 Initial Calibration Verification
8 Continuing Calibration Verification
9 Low-Level Calibration Check Sample
10 Calibration Blank
11 Laboratory or Preparation Blank
12 ICPMS or ICP Interference Check Standard
13 Laboratory Control Sample or Laboratory Control Sample Duplicate Recovery
14 Laboratory Control Sample Precision
15 Laboratory Duplicate Precision
16 Matrix Spike or Matrix Spike Duplicate Recovery
17 Matrix Spike/Matrix Spike Duplicate Precision
18 ICPMS or ICP Serial Dilution
19 ICPMS Internal Standard
20 Field Replicate Precision
21 Equipment Rinsate Blank
22 Linear Range Exceeded
23 Other reason
26 Source Water Blank

I(a). Deliverables and Chain-of-Custody Documentation

All deliverables were present and complete including the Case Narrative with full explanation of corrective actions and all package deliverables defined in the project SAP.

The chain-of-custodies were complete for sample identification, matrix, methods, preservation, dates and times of collection, dates and times of relinquishment and receipt. Any corrections performed properly (i.e., crossed-out with a single line; correction visible, neat, and clear; and with initials of individual making correction).

I(b). Preservation and Holding Times

All technical holding time requirements were met: 6 months for water and soil (note NIST soil standard reference samples are valid for up to 3 years).

All samples were received intact with proper preservation (pH < 2 for water).

II. ICP-MS Tune Analysis

ICP-MS tuning was performed by the laboratory. All isotopes in the tuning solution mass resolution were within 0.1 amu. Resolutions are < 0.9 amu full width at 10% peak height.

The percent relative standard deviations (%RSD) of all isotopes in the tuning solution were less than or equal to 5.0%.

III. Calibration

An initial calibration was performed each day of analysis. The frequency and analysis criteria (90-110%) of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

The low-level initial calibration verification (LLICV) and low-level continuing calibration verifications (LLCCVs) standard frequency and limits (70-130%) were met. Limit for maganese is 50 -150%. Only undetected data, or values < 2 x RL are qualified or impacted.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

ICP interference check samples were reviewed for each analyte as applicable. Percent recovery (%R) of the ICSAB were within the QC limits of 80-120%.

VI. Laboratory Control Sample (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 80-120% limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPDs) were within the acceptance criteria of ≤ 20% for water or ≤ 35% for soil. For low level results, <5 x RL, a difference of ± 1 x RL is allowed for water and ± 2 x RL for soils.

VIII. Spike Sample Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 75-125% and relative percent differences (RPD) were within 20% limits (35% soils).

IX. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria of ±10% difference for values greater than 50 times the lower limit of quantitation (i.e., the method detection limits [MDLs]) were met.

Selenium results were outside the QC limits; results were not qualified since the original sample (TP-12 (7-9)) was less than 50 times the MDL.

X. ICP-MS Internal Standards

All internal standard percent recoveries (%R) were within 70-130% or a 2x dilution was run with acceptable recoveries.

XI. Field Replicates

Field replicate samples were collected in duplicate. Control limit(s) were not established in the SAP since the average of the replicate samples is used as the final value for the field location. Results of field replicate samples or other project samples were not qualified based on the precision of field replicate samples.

XII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2B criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

Metals - Data Qualification Summary - SDG L34446

No Sample Data Qualified in this SDG

Metals - Laboratory Blank Data Qualification Summary - SDG L34446

No Sample Data Qualified in this SDG

Metals - Field Blank Data Qualification Summary - SDG L34446

No Sample Data Qualified in this SDG

LDC #: 38325B4a

VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 4/4/17

SDG #: L34446

Page: 1 of 1

Laboratory: ACZ Laboratories, Inc.

Reviewer: CB

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	A	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	A	(10, 11)
VIII.	Duplicate sample analysis	N	
IX.	Serial Dilution	A	Se ok = < 50x MDL
X.	Laboratory control samples	A	LCS ID
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	
XIII.	Sample Result Verification	A	Not reviewed for Stage 2B validation.
XIV.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	SB-01_02GT (1.5-6.5)	L34446-01	Soil	09/09/16
2	SB-07GT (4-21)	L34446-02	Soil	09/21/16
3	SB-03_TP-3 (1-5)	L34446-03	Soil	09/10/16
4	TP-6 (7-10)**	L34446-04**	Soil	08/26/16
5	TP-8 (3.5-13)	L34446-05	Soil	08/24/16
6	TP-9 (7-14)	L34446-06	Soil	08/24/16
7	TP-12 (7-9)	L34446-07	Soil	08/25/16
8	TP-14 (3-7)	L34446-08	Soil	08/25/16
9	TP-20 (12-14)	L34446-09	Soil	08/25/16
10	TP-12 (7-9)MS	L34446-07MS	Soil	08/25/16
11	TP-12 (7-9)MSD	L34446-07MSD	Soil	08/25/16
12				
13				

Notes:

.DC #: 38225B4a

VALIDATION FINDINGS CHECKLIST

Reviewer: VB
2nd Reviewer: a

Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?			✓	
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

.DC #: 38325B4a

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: G

Validation Area	Yes	No	NA	Findings/Comments
VIII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			Se ok < 50 x MDL
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 38325B4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: JB
2nd reviewer: a

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-9	Soil	Al, Sb, (As), Ba, Be, (Cd), Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, (Se), Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, (4)
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
QC		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
10, 11	Soil	Al, Sb, (As), Ba, Be, (Cd), Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, (Se), Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, (4)
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ___

Comments: Mercury by CVAA if performed

LDC #: 38325B4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: JB
2nd Reviewer: a

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
	ICP (Initial calibration)						
ICV	ICP/MS (Initial calibration)	As	48.764 ug/L	0.05 mg/L	98%	98%	Y
	CVAA (Initial calibration)						
	ICP (Continuing calibration)						
CCV	ICP/MS (Continuing calibration) CCV1	Cd	98.203 ug/L	0.1001 mg/L	98%	98%	Y
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 38325B4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: YB
2nd Reviewer: a

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Se	21.443 ug/L	0.02002 mg/L	107%	107%	Y
LCS	Laboratory control sample	U	3.59 x 5000 = 17950 ug/Kg	(17.6) JS 17.6 mg/Kg	102%	NR (102%)	Y
MS	Matrix spike	As	SR = 12 (SSR-SR) 78.47 x 510 ÷ 1000 = 40.1217 mg/Kg − 12 = 28.1217 mg/Kg	25.551 mg/Kg	110%	110%	Y
MSD	Duplicate	As	82.18 x 510 ÷ 1000 = 41.9118 mg/Kg	FOUND: 40.1217 mg/Kg	4 RPD	4 RPD	Y
SD	ICP serial dilution	Cd	0.54 x 505 ÷ 1000 = 0.2727 x 5 = 1.3635 mg/Kg	original = 1.41 mg/Kg	3 RPD	4 RPD	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

* NR = Not Reported / Calculated in QC Summary
↳ found in Workgroup Review: Approval Section.

TOTCLC.4SW

LDC #: 38325B4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JB
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for U were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

From Raw Data: U = ~~23.01~~ 13.77 JB ug/L x 510 = 7022.7 ug/Kg = 7.0227 mg/Kg

#	Sample ID	Analyte	Reported Concentration (mg/Kg)	Calculated Concentration (mg/Kg)	Acceptable (Y/N)
	4	As	19.0	19.0	
	4	Cd	18.5	18.5	
	4	Se	0.89	0.89	
	4	U	7.02	7.02	

Note:

Report# 38325C4a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Monsanto, P4 Production LLC

Report Date: April 5, 2017

Matrix: Water

Parameters: Metals by ICPMS SW-846 Method 6020

Validation Level: Stage 2B & 4

Laboratory: ACZ Laboratories, Inc.

Sample Delivery Group (SDG): L34674

Sample Identification	Collection Date	Laboratory Sample Identification
SB-06GT (1.5-10)	09/13/16	L34674-01
SB-07GT (0-4)	09/21/16	L34674-02
SB-09GT (8-12)	09/21/16	L34674-03
SB-09GT (18-22)	09/21/16	L34674-04
SB-12GT (0-27)	09/22/16	L34674-05
SB-13AL (0-25)**	09/13/16	L34674-06**
SB-14AL (0-15)	09/23/16	L34674-07
SB-14AL (15-35)	09/24/16	L34674-08
SB-15AL (0-25)	09/11/16	L34674-09
SB-15AL (25-50)	09/11/16	L34674-10
SB-01_02GT (1.5-6.5)-D	09/09/16	L34674-11
TP-6 (7-10)-DUPLICATE	08/26/16	L34674-12
TP-20 (12-14)-DUPLICATE	08/25/16	L34674-13
SB-09GT (8-12)-DUPLICATE	09/21/16	L34674-14
SB-14AL (0-15)MS	09/23/16	L34674-07MS
SB-14AL (0-15)MSD	09/23/16	L34674-07MSD

**Indicates sample underwent Stage 4 review.

Introduction

This data review covers 16 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analysis was performed per the EPA SW 846 Method noted below:

- Method 6020 ICPMS: Arsenic, Cadmium, Molybdenum, Selenium, and Uranium.

This review follows the specific guidance in the QAPP Addendum (MWH 2009) to the project SAP (April, 2004) using the intent of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as applicable to the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were reviewed for a minimum of 10% of the Sample Delivery Groups (SDGs) or laboratory data package deliverables associated with this sampling event as specified in the QAPP Addendum. This package includes raw data review.

The following are definitions of the data qualifiers:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximated concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

R The result is unusable. The sample result is rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

The following are not data qualifiers but are provided for the purpose of evaluating the laboratory's performance:

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

The following "Reason Codes" will be applied as applicable to the validated data:

1 Holding Time
2 Sample Preservation (including receipt temperature)
3 Sample Custody
4 Missing Deliverable
5 ICPMS Tune
6 Initial Calibration
7 Initial Calibration Verification
8 Continuing Calibration Verification
9 Low-Level Calibration Check Sample
10 Calibration Blank
11 Laboratory or Preparation Blank
12 ICPMS or ICP Interference Check Standard
13 Laboratory Control Sample or Laboratory Control Sample Duplicate Recovery
14 Laboratory Control Sample Precision
15 Laboratory Duplicate Precision
16 Matrix Spike or Matrix Spike Duplicate Recovery
17 Matrix Spike/Matrix Spike Duplicate Precision
18 ICPMS or ICP Serial Dilution
19 ICPMS Internal Standard
20 Field Replicate Precision
21 Equipment Rinsate Blank
22 Linear Range Exceeded
23 Other reason
26 Source Water Blank

I(a). Deliverables and Chain-of-Custody Documentation

All deliverables were present and complete including the Case Narrative with full explanation of corrective actions and all package deliverables defined in the project SAP.

The chain-of-custodies were complete for sample identification, matrix, methods, preservation, dates and times of collection, dates and times of relinquishment and receipt. Any corrections performed properly (i.e., crossed-out with a single line; correction visible, neat, and clear; and with initials of individual making correction).

I(b). Preservation and Holding Times

All technical holding time requirements were met: 6 months for water and soil (note NIST soil standard reference samples are valid for up to 3 years).

All samples were received intact with proper preservation (pH < 2 for water).

II. ICP-MS Tune Analysis

ICP-MS tuning was performed by the laboratory. All isotopes in the tuning solution mass resolution were within 0.1 amu. Resolutions are < 0.9 amu full width at 10% peak height.

The percent relative standard deviations (%RSD) of all isotopes in the tuning solution were less than or equal to 5.0%.

III. Calibration

An initial calibration was performed each day of analysis. The frequency and analysis criteria (90-110%) of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

The low-level initial calibration verification (LLICV) and low-level continuing calibration verifications (LLCCVs) standard frequency and limits (70-130%) were met. Limit for maganese is 50 -150%. Only undetected data, or values < 2 x RL are qualified or impacted.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Cadmium Uranium	0.00019 mg/L 0.0002 mg/L	SB-06GT (1.5-10) SB-07GT (0-4) SB-09GT (8-12) SB-09GT (18-22) SB-12GT (0-27) SB-13AL (0-25)** SB-14AL (0-15) SB-14AL (15-35) SB-15AL (0-25) SB-15AL (25-50) SB-01_02GT (1.5-6.5)-D
ICB/CCB	Selenium	0.00028 mg/L	SB-06GT (1.5-10) SB-07GT (0-4) SB-09GT (8-12)
ICB/CCB	Selenium	0.00033 mg/L	SB-09GT (18-22) SB-12GT (0-27) SB-13AL (0-25)** SB-14AL (0-15) SB-14AL (15-35) SB-15AL (0-25) SB-15AL (25-50) SB-01_02GT (1.5-6.5)-D TP-6 (7-10)-DUPLICATE TP-20 (12-14)-DUPLICATE SB-09GT (8-12)-DUPLICATE
ICB/CCB	Cadmium Uranium	0.0002 mg/L 0.00021 mg/L	TP-6 (7-10)-DUPLICATE TP-20 (12-14)-DUPLICATE SB-09GT (8-12)-DUPLICATE

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SB-07GT (0-4)	Selenium	0.22 mg/Kg	0.22J+ mg/Kg
SB-14AL (0-15)	Selenium	0.68 mg/Kg	0.68J+ mg/Kg
SB-01_02GT (1.5-6.5)-D	Selenium	0.20 mg/Kg	0.20J+ mg/Kg
TP-6 (7-10)-DUPLICATE	Selenium	0.50 mg/Kg	0.50J+ mg/Kg
TP-20 (12-14)-DUPLICATE	Selenium	0.53 mg/Kg	0.53J+ mg/Kg

No field blanks were identified in this SDG.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

ICP interference check samples were reviewed for each analyte as applicable. Percent recovery (%R) of the ICSAB were within the QC limits of 80-120%.

VI. Laboratory Control Sample (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 80-120% limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPDs) were within the acceptance criteria of ≤ 20% for water or ≤ 35% for soil. For low level results, <5 x RL, a difference of ± 1 x RL is allowed for water and ± 2 x RL for soils.

VIII. Spike Sample Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 75-125% and relative percent differences (RPD) were within 20% limits (35% soils).

IX. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria of ±10% difference for values greater than 50 times the lower limit of quantitation (i.e., the method detection limits [MDLs]) were met.

X. ICP-MS Internal Standards

All internal standard percent recoveries (%R) were within 70-130% or a 2x dilution was run with acceptable recoveries with the following exceptions:

Sample	Internal Standard	%R	Affected Analyte	Flag	A or P
TP-6 (7-10)-DUPLICATE	Indium-115	134.77	Cadmium	J (all detects)	P
TP-6 (7-10)-DUPLICATE	Bismuth-209	138.48	Uranium	J (all detects)	P

XI. Field Replicates

Field replicate samples were collected in duplicate. Control limit(s) were not established in the SAP since the average of the replicate samples is used as the final value for the field location. Results of field replicate samples or other project samples were not qualified based on the precision of field replicate samples.

XII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2B criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

Metals - Data Qualification Summary - SDG L34674

Sample	Analyte	Flag	A or P	Reason (Code)
TP-6 (7-10)-DUPLICATE	Cadmium Uranium	J (all detects) J (all detects)	P	Internal standards (%R) (19)

Metals - Laboratory Blank Data Qualification Summary - SDG L34674

Sample	Analyte	Modified Final Concentration	A or P	Code
SB-07GT (0-4)	Selenium	0.22J+ mg/Kg	A	10
SB-14AL (0-15)	Selenium	0.68J+ mg/Kg	A	10
SB-01_02GT (1.5-6.5)-D	Selenium	0.20J+ mg/Kg	A	10
TP-6 (7-10)-DUPLICATE	Selenium	0.50J+ mg/Kg	A	10
TP-20 (12-14)-DUPLICATE	Selenium	0.53J+ mg/Kg	A	10

Metals - Field Blank Data Qualification Summary - SDG L34674

No Sample Data Qualified in this SDG

LDC #: 38325C4a

SDG #: L34674

Laboratory: ACZ Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 4/4/17

Page: 1 of 2

Reviewer: JB

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	A	15, 16
VIII.	Duplicate sample analysis	N	
IX.	Serial Dilution	A	
X.	Laboratory control samples	A	LCS 1
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	SW	
XIII.	Sample Result Verification	A	Not reviewed for Stage 2B validation.
XIV.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	SB-06GT (1.5-10) As, Cd, Mo, Se, U	L34674-01	Soil	09/13/16
2	SB-07GT (0-4)	L34674-02	Soil	09/21/16
3	SB-09GT (8-12)	L34674-03	Soil	09/21/16
4	SB-09GT (18-22)	L34674-04	Soil	09/21/16
5	SB-12GT (0-27)	L34674-05	Soil	09/22/16
6	SB-13AL (0-25)**	L34674-06**	Soil	09/13/16
7	SB-14AL (0-15)	L34674-07	Soil	09/23/16
8	SB-14AL (15-35)	L34674-08	Soil	09/24/16
9	SB-15AL (0-25)	L34674-09	Soil	09/11/16
10	SB-15AL (25-50) - 5metals ↑	L34674-10	Soil	09/11/16
11	SB-01_02GT (1.5-6.5)-D 4 metals (As, Cd, Se, U)	L34674-11	Soil	09/09/16
12	TP-6 (7-10)-DUPLICATE ↓	L34674-12	Soil	08/26/16
13	TP-20 (12-14)-DUPLICATE	L34674-13	Soil	08/25/16
14	SB-09GT (8-12)-DUPLICATE - 5 metals	L34674-14	Soil	09/21/16
15	SB-14AL (0-15)MS	L34674-07MS	Soil	09/23/16

LDC #: 38325C4a

VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 4/4/17

SDG #: L34674

Page: 2 of 2

Laboratory: ACZ Laboratories, Inc.

Reviewer: JB

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020)

	Client ID	Lab ID	Matrix	Date
16	SB-14AL (0-15)MSD	L34674-07MSD	Soil	09/23/16
17				
18				
19				
20				
21				

Notes:

DC #: 38325 C4a

VALIDATION FINDINGS CHECKLIST

Reviewer: VB
2nd Reviewer: [illegible]

Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?			✓	
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

DC #: 38325C4a

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?		✓		
If the %Rs were outside the criteria, was a reanalysis performed?	✓			* But not reported (Se only)
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 38325C4c

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: JB
2nd reviewer: a

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-10, 14	Soil	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, U
11-13	soil	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, U
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
QC		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
soil ↔ 15,16		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, U
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-,

Comments: Mercury by CVAA if performed

LDC #: 38325C4a

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: US
2nd Reviewer: a

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: NA

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 1 - 11

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Cd			0.00019	0.475									
U			0.0002	0.5									

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 1 - 3

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	2								
Se			0.00028	0.7	0.22 J+								

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 4 - 14

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	7	11	12	13					
Se			0.00033	0.825	0.68 J+	0.20 J+	0.50 J+	0.53 J+					

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 12 - 14

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Cd			0.0002	0.5									
U			0.00021	0.525									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 38325C4a

VALIDATION FINDINGS WORKSHEET
Internal Standards (ICP-MS)

Reviewer: JB
2nd Reviewer: C

METHOD: Metals (EPA Method 6020~~A~~)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard percent recoveries within ~~≥70%~~ of the intensity of the internal standard in the initial calibration standard ? (~~30-120~~)

(Y) ~~N~~ N/A If the response to the above question is no, were the samples reanalyzed as required ?

#	Date	Internal Standard	Associated Metals	%R (Limits)	Associated Samples	Qualifications
	1/12/17	In (Mass 115) NoGas	Cd	134.77 (~~30 - 120~~) 70-130	12	J~~/~~/UJ/P (Det)
	1/12/17	Bi (Mass 209) NoGas	U	138.48 (~~30 - 120~~)	12	J~~/~~/UJ/P (Det)

LDC #: 38325C4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: YB
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100

Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

%D = |I-SDR| / I x 100

Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check 1/12	Se	20.881 µg/L	0.02002	104%	104%	Y
LCS	Laboratory control sample 5000x	U	3.31 µg/L x 5000 = 16550 µg/Kg = 16.55 mg/Kg	17.6 mg/Kg	94%	NR (94%)	Y
MS	Matrix spike	As	SR=6.7 (SSR-SR) 64.19 x 510 = ~~32095 - 32.095 - 6.7 = 25.3~~ * See below	25.55 mg/Kg	102%	102%	Y
MSD	Duplicate	As	63.97 x 510 = 32.6247 mg/Kg	FOUND: 32.7369 mg/Kg	0 RPD	0 RPD	Y
SD	ICP serial dilution 34674-013DL	Cd	2.58 x 510 = 1315.8 x 5 = 6579 µg/Kg = 6.579 mg/Kg	Original = 6.77 mg/Kg	3 RPD	3 RPD	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

As MS = 64.19 x 510 = 32736.9 ug/Kg
= 32.7369 mg/Kg - 6.7 = 26.0329 mg/Kg

(NR = Not Reported / Calculated.
in QC Summary - % Rec
Found in Workgroup Review: Approval Section)

TOTCLC.4SW

LDC #: 38325C4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: JB
2nd Reviewer: CL

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found / True x 100 Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
	ICP (Initial calibration)						
ICV	ICP/MS (Initial calibration)	Cd	49.575 ug/L	0.05 mg/L	99%	99%	Y
	CVAA (Initial calibration)						
	ICP (Continuing calibration)						
CCV	ICP/MS (Continuing calibration) 1/12 13:51	Mo	98.821 ug/L	0.1001 mg/L	99%	99%	Y
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 38325C4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JB
2nd reviewer: a

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for Se were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

From Raw Data = 6.52 µg/L × 505 prep factor = 3292.6 µg/Kg
= 3.2926 mg/Kg

#	Sample ID	Analyte	Reported Concentration (mg/Kg)	Calculated Concentration (mg/Kg)	Acceptable (Y/N)
	6	As	5.9	5.9	Y
	6	Cd	4.61	4.61	Y
	6	Mo	4.3	4.3	Y
	6	Se	3.29	3.29	Y
	6	U	15.2	15.2	Y

Note:

Report# 38325D4a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Monsanto, P4 Production LLC

Report Date: April 6, 2017

Matrix: Water

Parameters: Metals by ICPMS SW-846 Method 6020

Validation Level: Stage 2B & 4

Laboratory: ACZ Laboratories, Inc.

Sample Delivery Group (SDG): L35520

Sample Identification	Collection Date	Laboratory Sample Identification
TP-6_7_9 (2-5)**	08/24/16	L35520-01**
SB-12GT (0-27)	09/22/16	L35520-02
SB-13AL (0-25)	09/13/16	L35520-03
SB-14AL (15-35)	09/24/16	L35520-04
TP-6_7_9 (2-5)MS	08/24/16	L35520-01MS
TP-6_7_9 (2-5)MSD	08/24/16	L35520-01MSD
TP-6_7_9 (2-5)DUP	08/24/16	L35520-01DUP

Samples in this SDG underwent Synthetic Precipitation Leaching Procedure (SPLP) extraction.
**Indicates sample underwent Stage 4 review.

Introduction

This data review covers 7 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analysis was performed per the EPA SW 846 Method noted below:

- Method 6020 ICPMS: Arsenic, Cadmium, and Selenium.

This review follows the specific guidance in the QAPP Addendum (MWH 2009) to the project SAP (April, 2004) using the intent of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as applicable to the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were reviewed for a minimum of 10% of the Sample Delivery Groups (SDGs) or laboratory data package deliverables associated with this sampling event as specified in the QAPP Addendum. This package includes raw data review.

The following are definitions of the data qualifiers:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximated concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

R The result is unusable. The sample result is rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

The following are not data qualifiers but are provided for the purpose of evaluating the laboratory's performance:

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

The following "Reason Codes" will be applied as applicable to the validated data:

1 Holding Time
2 Sample Preservation (including receipt temperature)
3 Sample Custody
4 Missing Deliverable
5 ICPMS Tune
6 Initial Calibration
7 Initial Calibration Verification
8 Continuing Calibration Verification
9 Low-Level Calibration Check Sample
10 Calibration Blank
11 Laboratory or Preparation Blank
12 ICPMS or ICP Interference Check Standard
13 Laboratory Control Sample or Laboratory Control Sample Duplicate Recovery
14 Laboratory Control Sample Precision
15 Laboratory Duplicate Precision
16 Matrix Spike or Matrix Spike Duplicate Recovery
17 Matrix Spike/Matrix Spike Duplicate Precision
18 ICPMS or ICP Serial Dilution
19 ICPMS Internal Standard
20 Field Replicate Precision
21 Equipment Rinsate Blank
22 Linear Range Exceeded
23 Other reason
26 Source Water Blank

I(a). Deliverables and Chain-of-Custody Documentation

All deliverables were present and complete including the Case Narrative with full explanation of corrective actions and all package deliverables defined in the project SAP.

The chain-of-custodies were complete for sample identification, matrix, methods, preservation, dates and times of collection, dates and times of relinquishment and receipt. Any corrections performed properly (i.e., crossed-out with a single line; correction visible, neat, and clear; and with initials of individual making correction).

I(b). Preservation and Holding Times

All technical holding time requirements were met: 6 months for water and soil (note NIST soil standard reference samples are valid for up to 3 years) with the following exceptions:

Sample	Analyte	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
TP-6_7_9 (2-5)**	All metals	182	180	J- (all detects)	P

All samples were received intact with proper preservation (pH < 2 for water).

II. ICP-MS Tune Analysis

ICP-MS tuning was performed by the laboratory. All isotopes in the tuning solution mass resolution were within 0.1 amu. Resolutions are < 0.9 amu full width at 10% peak height.

The percent relative standard deviations (%RSD) of all isotopes in the tuning solution were less than or equal to 5.0%.

III. Calibration

An initial calibration was performed each day of analysis. The frequency and analysis criteria (90-110%) of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

The low-level initial calibration verification (LLICV) and low-level continuing calibration verifications (LLCCVs) standard frequency and limits (70-130%) were met. Limit for maganese is 50 -150%. Only undetected data, or values < 2 x RL are qualified or impacted.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Selenium	0.0002 mg/L	TP-6_7_9 (2-5)**
ICB/CCB	Selenium	0.00021 mg/L	SB-12GT (0-27) SB-13AL (0-25) SB-14AL (15-35)

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TP-6_7_9 (2-5)**	Selenium	0.0005 mg/L	0.0005J+ mg/L
SB-12GT (0-27)	Selenium	0.0003 mg/L	0.0003J+ mg/L
SB-14AL (15-35)	Selenium	0.0003 mg/L	0.0003J+ mg/L

No field blanks were identified in this SDG.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

ICP interference check samples were reviewed for each analyte as applicable. Percent recovery (%R) of the ICSAB were within the QC limits of 80-120%.

VI. Laboratory Control Sample (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 80-120% limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPDs) were within the acceptance criteria of ≤ 20% for water or ≤ 35% for soil. For low level results, <5 x RL, a difference of ± 1 x RL is allowed for water and ± 2 x RL for soils.

For TP-6_7_9 (2-5)DUP no data were qualified for Arsenic, Cadmium, and Selenium relative percent differences (RPDs) outside the QC limits since the difference results were within QC limits.

VIII. Spike Sample Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 75-125% and relative percent differences (RPD) were within 20% limits (35% soils).

IX. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria of ±10% difference for values greater than 50 times the lower limit of quantitation (i.e., the method detection limits [MDLs]) were met.

X. ICP-MS Internal Standards

All internal standard percent recoveries (%R) were within 70-130% or a 2x dilution was run with acceptable recoveries.

XI. Field Replicates

Field replicate samples were collected in duplicate. Control limit(s) were not established in the SAP since the average of the replicate samples is used as the final value for the field location. Results of field replicate samples or other project samples were not qualified based on the precision of field replicate samples.

XII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2B criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

Metals - Data Qualification Summary - SDG L35520

Sample	Analyte	Flag	A or P	Reason (Code)
TP-6_7_9 (2-5)**	All metals	J- (all detects)	P	Technical holding times (1)

Metals - Laboratory Blank Data Qualification Summary - SDG L35520

Sample	Analyte	Modified Final Concentration	A or P	Code
TP-6_7_9 (2-5)**	Selenium	0.0005J+ mg/L	A	10
SB-12GT (0-27)	Selenium	0.0003J+ mg/L	A	10
SB-14AL (15-35)	Selenium	0.0003J+ mg/L	A	10

Metals - Field Blank Data Qualification Summary - SDG L35520

No Sample Data Qualified in this SDG

LDC #: 38325D4a

SDG #: L35520

Laboratory: ACZ Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 4/4/17

Page: 1 of 1

Reviewer: JB

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /SW	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	A	5, 6
VIII.	Duplicate sample analysis	A	As, Cd, Se ok by % Difference
IX.	Serial Dilution	A	
X.	Laboratory control samples	A	
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	
XIII.	Sample Result Verification	A	Not reviewed for Stage 2B validation.
XIV.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation, Samples in this SDG underwent SPLP extraction

	Client ID	Lab ID	Matrix	Date
1	TP-6_7_9 (2-5)**	L35520-01**	Soil	08/24/16
2	SB-12GT (0-27)	L35520-02	Soil	09/22/16
3	SB-13AL (0-25)	L35520-03	Soil	09/13/16
4	SB-14AL (15-35)	L35520-04	Soil	09/24/16
5	TP-6_7_9 (2-5)MS	L35520-01MS	Soil	08/24/16
6	TP-6_7_9 (2-5)MSD	L35520-01MSD	Soil	08/24/16
7	TP-6-7-9(2-5)PUP	L35520-01DUP	Soil	8/24/16
8				
9				
10				
11				
12				

Notes:

DC #: 38325D4a

VALIDATION FINDINGS CHECKLIST

Reviewer: VB
2nd Reviewer: [illegible]

Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?			✓	
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

DC #: 38325D4a

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 38325D4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: JB
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-4	SOIL	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
QC		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
5-7	SOIL	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ____

Comments: Mercury by CVAA if performed

LDC #: 38325D4a

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: JB
2nd reviewer:

All circled dates have exceeded the technical holding time.
Y N N/A Were all samples preserved as applicable to each method ?
Y N N/A Were all cooler temperatures within validation criteria?

Method:		EPA 6020					
Parameters:		Metals (As, Cd, Se)					
Technical holding time:		180 days					
Sample ID	Sampling date	Extraction ~~Analysis~~ date	Total Time	Qualifier	Analysis date	Total Time	Qualifier
1	8/24/16	2/~~28~~ 22/17	~~188~~ 182 days	J- ~~J~~/UJ/P (Det)			

LDC #: 38325D4a

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA

Reviewer: VB
2nd Reviewer: a

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	1								
Se			0.0002	0.001	0.0005 J+								

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 2 - 4

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	2	3	4						
Se			0.00021	0.0011	0.0003 J+	0.001 J+	0.0003 J+						

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 38325D4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: JB
2nd Reviewer: a

METHOD: Trace Metals (See cover)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
	ICP (Initial calibration)						
~~ICV~~ JB	ICP (Continuing calibration)						
ICV	ICP-MS (Initial calibration)	As	51.540ug/L	0.05mg/L	103%	103%	Y
CCV	ICP-MS (Continuing calibration)	Se	94.550ug/L	0.1001mg/L	94%	94%	Y
	CVAA (Initial calibration)						
	CVAA (Contining calibration)						
	FLAA (Initial calibration)						
	FLAA (Continuing calibation)						

Comments: _____

CALCLC

LDC #: 38325D4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: YB
2nd Reviewer: a

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Se	20.230 ug/L	0.02002 mg/L ~~0.020002 mg~~	101%	101%	Y
LCS	Laboratory control sample	As	48.410 ug/L	0.0501 mg/L	97%	97%	Y
MS	Matrix spike	Cd	SR=0.0004 (SSR-SR) 49.730 ug/L = 49.33 ug/L	0.05005 mg/L	99%	99%	Y
MSD	Duplicate	Cd	47.480 ug/L	FOUND: 49.730 ug/L	5 RPD	5 RPD	Y
SD	ICP serial dilution Non C.S.	Se	2.173 ug/L x 5 = 0.010865 mg/L	original = 0.0106 mg/L	2 RPD	2 RPD	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 38325D4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JB
2nd reviewer: a

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for As were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

From Raw Data As = JB 1.129 ug/L

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	1	As	0.0011	0.0011	Y
	1	Se	0.0005	0.0005	Y
	1	Cd	0.0004	0.0004	Y

Note:

RECALC.4SW

LDC #: 38325

EDD POPULATION COMPLETENESS WORKSHEET

Date: 4/13/17
Page: 1 of 1
2nd Reviewer: ag

The LDC job number listed above was entered by SE.

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	Y	
Ib.	- All samples present/match report?	Y	
Ic.	- All reported analytes present?	Y	
Id.	- 10% or 100% verification of EDD?	Y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	Y	
IIb.	- Reason Codes used? If so, note which codes.	Y	client
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	Y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	
IIId.	-Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	+	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	Y	
IIIf.	- Were any results reported above calibration range? If so, were results qualified appropriately?	+	
IIIg.	-Is the readme complete? If applicable, were edits or discrepancies listed in the readme?	—	

Notes: *see discrepancy sheet

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Stantec.
2890 East Cottonwood Parkway Suite 300
Salt Lake City, UT 84121
ATTN: Ms. Betty VanPelt

April 14, 2017

SUBJECT: Monsanto, P4 Background, Data Validation

Dear Ms. VanPelt,

Enclosed is the final validation report for the fraction listed below. This SDG was received on March 30, 2017. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #38347:

SDG #	**Fraction**
L36109	Metals by ICPMS SW-846 Method 6020

The data verification was performed under Stage 2B & 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- QAPP Addendum, MWH 2009, to the project SAP, April, 2004
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

169 pages-SF EDD Attachment 1

90/10 2B/4 LDC #38347 (Stantec Consulting Services, Inc.-Salt Lake City, UT / Monsanto, P4 Background)

LDC	SDG#	DATE REC'D	(3) DATE DUE	(4) Metals (6020)																																	
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	L36109	03/30/17	04/20/17	0	13																																
A	L36109	03/30/17	04/20/17	0	2																																
Total	T/CR			0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15

Shaded cells indicate Stage 4 review (all other cells are Stage 2B review and calibration data validation only). These sample counts do not include MS/MSD, and DUPs. s:\Stantec\Monsanto P4\38347ST.wpd

Report# 38347A4a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Monsanto, P4 Production LLC

Report Date: April 11, 2017

Matrix: Water

Parameters: Metals by ICPMS SW-846 Method 6020

Validation Level: Stage 2B & 4

Laboratory: ACZ Laboratories, Inc.

Sample Delivery Group (SDG): L36109

Sample Identification	Collection Date	Laboratory Sample Identification
RC-40V1(22-37)	01/31/17	L36109-01
RC-03V1(20-30)	01/31/17	L36109-02
RC-07V1(40-55)	01/31/17	L36109-03
RC-11V1(30-40)	01/31/17	L36109-04
RC-19V1(42-52)	01/31/17	L36109-05
RC-21V1(27-37)**	01/31/17	L36109-06**
RC-21V1(107-117)	01/31/17	L36109-07
RC-24V1(27-42)	01/31/17	L36109-08
RC-24V1(102-112)	01/31/17	L36109-09
RC-28V1(37-48)	01/31/17	L36109-10
RC-38V1(52-62)	01/31/17	L36109-11
RC-01V1(5-15)**	01/31/17	L36109-12**
RC-10V1(5-22)	01/31/17	L36109-13
SS-16(GRAB)	01/31/17	L36109-14
RC-10V1(5-22)DUP	01/31/17	L36109-15
RC-40V1(22-37)MS	01/31/17	L36109-01MS
RC-40V1(22-37)MSD	01/31/17	L36109-01MSD

**Indicates sample underwent Stage 4 review.

Introduction

This data review covers 17 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analysis was performed per the EPA SW 846 Method noted below:

- Method 6020 ICPMS: Arsenic, Cadmium, Selenium, and Uranium.

This review follows the specific guidance in the QAPP Addendum (MWH 2009) to the project SAP (April, 2004) using the intent of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as applicable to the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were reviewed for a minimum of 10% of the Sample Delivery Groups (SDGs) or laboratory data package deliverables associated with this sampling event as specified in the QAPP Addendum. This package includes raw data review.

The following are definitions of the data qualifiers:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximated concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

R The result is unusable. The sample result is rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

The following are not data qualifiers but are provided for the purpose of evaluating the laboratory's performance:

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

The following "Reason Codes" will be applied as applicable to the validated data:

1 Holding Time
2 Sample Preservation (including receipt temperature)
3 Sample Custody
4 Missing Deliverable
5 ICPMS Tune
6 Initial Calibration
7 Initial Calibration Verification
8 Continuing Calibration Verification
9 Low-Level Calibration Check Sample
10 Calibration Blank
11 Laboratory or Preparation Blank
12 ICPMS or ICP Interference Check Standard
13 Laboratory Control Sample or Laboratory Control Sample Duplicate Recovery
14 Laboratory Control Sample Precision
15 Laboratory Duplicate Precision
16 Matrix Spike or Matrix Spike Duplicate Recovery
17 Matrix Spike/Matrix Spike Duplicate Precision
18 ICPMS or ICP Serial Dilution
19 ICPMS Internal Standard
20 Field Replicate Precision
21 Equipment Rinsate Blank
22 Linear Range Exceeded
23 Other reason
26 Source Water Blank

I(a). Deliverables and Chain-of-Custody Documentation

All deliverables were present and complete including the Case Narrative with full explanation of corrective actions and all package deliverables defined in the project SAP.

The chain-of-custodies were complete for sample identification, matrix, methods, preservation, dates and times of collection, dates and times of relinquishment and receipt. Any corrections performed properly (i.e., crossed-out with a single line; correction visible, neat, and clear; and with initials of individual making correction).

I(b). Preservation and Holding Times

All technical holding time requirements were met: 6 months for water and soil (note NIST soil standard reference samples are valid for up to 3 years).

All samples were received intact with proper preservation (pH < 2 for water).

II. ICP-MS Tune Analysis

ICP-MS tuning was performed by the laboratory. All isotopes in the tuning solution mass resolution were within 0.1 amu. Resolutions are < 0.9 amu full width at 10% peak height.

The percent relative standard deviations (%RSD) of all isotopes in the tuning solution were less than or equal to 5.0%.

III. Calibration

An initial calibration was performed each day of analysis. The frequency and analysis criteria (90-110%) of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

The low-level initial calibration verification (LLICV) and low-level continuing calibration verifications (LLCCVs) standard frequency and limits (70-130%) were met. Limit for maganese is 50 -150%. Only undetected data, or values < 2 x RL are qualified or impacted.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Arsenic	0.33 mg/Kg	RC-40V1(22-37) RC-03V1(20-30) RC-07V1(40-55) RC-11V1(30-40)

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Arsenic	0.16 mg/Kg	RC-19V1(42-52) RC-21V1(27-37)** RC-21V1(107-117) RC-24V1(27-42) RC-24V1(102-112) RC-28V1(37-48) RC-38V1(52-62) RC-01V1(5-15)** RC-10V1(5-22) SS-16(GRAB) RC-10V1(5-22)DUP
PB (prep blank)	Selenium	0.124 mg/Kg	All samples in SDG L36109
ICB/CCB	Selenium	0.0002 mg/L	RC-40V1(22-37) RC-03V1(20-30) RC-07V1(40-55) RC-11V1(30-40) RC-19V1(42-52) RC-21V1(27-37)** RC-21V1(107-117) RC-24V1(27-42) RC-24V1(102-112) RC-28V1(37-48) RC-38V1(52-62) RC-01V1(5-15)**
ICB/CCB	Selenium	0.00018 mg/L	RC-10V1(5-22) SS-16(GRAB) RC-10V1(5-22)DUP

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RC-01V1(5-15)**	Selenium	0.24 mg/Kg	0.24J+ mg/Kg
RC-10V1(5-22)	Selenium	0.32 mg/Kg	0.32J+ mg/Kg
SS-16(GRAB)	Selenium	0.24 mg/Kg	0.24J+ mg/Kg
RC-10V1(5-22)DUP	Selenium	0.25 mg/Kg	0.25J+ mg/Kg

No field blanks were identified in this SDG.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

ICP interference check samples were reviewed for each analyte as applicable. Percent recovery (%R) of the ICSAB were within the QC limits of 80-120%.

VI. Laboratory Control Sample (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 80-120% limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPDs) were within the acceptance criteria of ≤ 20% for water or ≤ 35% for soil. For low level results, <5 x RL, a difference of ± 1 x RL is allowed for water and ± 2 x RL for soils.

VIII. Spike Sample Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 75-125% and relative percent differences (RPD) were within 20% limits (35% soils).

IX. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria of ±10% difference for values greater than 50 times the lower limit of quantitation (i.e., the method detection limits [MDLs]) were met.

X. ICP-MS Internal Standards

All internal standard percent recoveries (%R) were within 70-130% or a 2x dilution was run with acceptable recoveries.

XI. Field Replicates

Field replicate samples were collected in duplicate. Control limit(s) were not established in the SAP since the average of the replicate samples is used as the final value for the field location. Results of field replicate samples or other project samples were not qualified based on the precision of field replicate samples.

XII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2B criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

Metals - Data Qualification Summary - SDG L36109

No Sample Data Qualified in this SDG

Metals - Laboratory Blank Data Qualification Summary - SDG L36109

Sample	Analyte	Modified Final Concentration	A or P	Code
RC-01V1(5-15)**	Selenium	0.24J+ mg/Kg	A	10
RC-10V1(5-22)	Selenium	0.32J+ mg/Kg	A	10
SS-16(GRAB)	Selenium	0.24J+ mg/Kg	A	10
RC-10V1(5-22)DUP	Selenium	0.25J+ mg/Kg	A	10

Metals - Field Blank Data Qualification Summary - SDG L36109

No Sample Data Qualified in this SDG

LDC #: 38347A4a

VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 3/4/17

SDG #: L36109

Page: 1 of 2

Laboratory: ACZ Laboratories, Inc.

Reviewer: JB

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	A	(16,17)
VIII.	Duplicate sample analysis	N	
IX.	Serial Dilution	A	
X.	Laboratory control samples	A	LCS/D
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	
XIII.	Sample Result Verification	A	Not reviewed for Stage 2B validation.
XIV	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	RC-40V1(22-37)	L36109-01	Soil	01/31/17
2	RC-03V1(20-30)	L36109-02	Soil	01/31/17
3	RC-07V1(40-55)	L36109-03	Soil	01/31/17
4	RC-11V1(30-40)	L36109-04	Soil	01/31/17
5	RC-19V1(42-52)	L36109-05	Soil	01/31/17
6	RC-21V1(27-37)**	L36109-06**	Soil	01/31/17
7	RC-21V1(107-117)	L36109-07	Soil	01/31/17
8	RC-24V1(27-42)	L36109-08	Soil	01/31/17
9	RC-24V1(102-112)	L36109-09	Soil	01/31/17
10	RC-28V1(37-48)	L36109-10	Soil	01/31/17
11	RC-38V1(52-62)	L36109-11	Soil	01/31/17
12	RC-01V1(5-15)**	L36109-12**	Soil	01/31/17
13	RC-10V1(5-22)	L36109-13	Soil	01/31/17
14	SS-16(GRAB)	L36109-14	Soil	01/31/17
15	RC-10V1(5-22)DUP	L36109-15	Soil	01/31/17

LDC #: 38347A4a

VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 4/4/17

SDG #: L36109

Page: 2 of 2

Laboratory: ACZ Laboratories, Inc.

Reviewer: JB

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020)

	Client ID	Lab ID	Matrix	Date
16	RC-40V1(22-37)MS	L36109-01MS	Soil	01/31/17
17	RC-40V1(22-37)MSD	L36109-01MSD	Soil	01/31/17
18				
19				
20				
21				
22				

Notes:

DC #: 38347A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: VB
2nd Reviewer: [illegible]

Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?			✓	
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

DC #: 38347A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 38347A4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: JB
2nd reviewer: a

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-15	Soil	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, U
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
QC		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
16, 17	Soil	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, U
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,

Comments: Mercury by CVAA if performed

LDC #: 38347A4a

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: JB
2nd Reviewer: a

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: NA

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 1 - 4

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
As	0.33			1.65									

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 5 - 15

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
As	0.16			0.8									

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	12	13	14	15					
Se	0.124			0.62	0.24 J+	0.32 J+	0.24 J+	0.25 J+					

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 1 - 12

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	12								
Se			0.0002	0.5	0.24 J+								

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 13 - 15

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	13	14	15						
Se			0.00018	0.45	0.32 J+	0.24 J+	0.25 J+						

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 38347A4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: JB
2nd Reviewer: a

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
	ICP (Initial calibration)						
ICV	ICP/MS (Initial calibration)	Cd	52.380 ug/L	0.05 mg/L	105%	105%	Y
	CVAA (Initial calibration)						
	ICP (Continuing calibration)						
CCV	ICP/MS (Continuing calibration) 3/27 17:17	As	103.300 ug/L	0.1002 mg/L	103%	103%	Y
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 38347A4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: YB
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check 3/27 10:20	As	20.42 ug/L	0.02004 mg/L	102%	102%	Y
LCS	Laboratory control sample	Se	35.460 x 5000 = 177300 ug/Kg	178 mg/Kg	100%	100%	Y
MS	Matrix spike	U	SR = 6.51 (SSR-SR) 37.800 x 505 19089 ÷ 1000 = 19.089 mg/Kg - 6.51 = 12.579 mg/Kg	12.625 mg/Kg	100%	100%	Y
MSD	Duplicate	U	37.380 x 505 ÷ 1000 = 18.8769 mg/Kg	FOUND = 19.089 mg/Kg	1 RPD	1 RPD	Y
SD	ICP serial dilution	Cd	0.435 x 500 ÷ 1000 x 5 = 1.0875 mg/Kg	Original = 1.13 mg/Kg	4 RPD	4 RPD	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 38347A4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JB
2nd reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for Se #16 were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

From Raw Data Se = 23.900 µg/L x 500 = 11950 µg/Kg
= 11.950 mg/Kg

#	Sample ID	Analyte	Reported Concentration (mg/Kg)	Calculated Concentration (mg/Kg)	Acceptable (Y/N)
16:52	6	As	6.3	6.3	Y
11:04	6	Cd	1.02	1.02	Y
16:52	6	Se	12.0	12.0	Y
11:04	6	U	3.36	3.36	Y
17:14	12	As	12.1	12.1	Y
11:24	12	Cd	0.82	0.82	Y
17:14	12	Se	0.24	0.24	Y
11:24	12	U	0.66	0.66	Y

Note:

LDC #: 38347

EDD POPULATION COMPLETENESS WORKSHEET

Date: 4/13/17
Page: 1 of 1
2nd Reviewer:

The LDC job number listed above was entered by JE.

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	y	
Ib.	- All samples present/match report?	y	
Ic.	- All reported analytes present?	y	
Id.	-10% or 100% verification of EDD?	y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	y	
IIb.	- Reason Codes used? If so, note which codes.	y	client
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	y	
IIId.	-Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	+	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	y	
IIIf.	- Were any results reported above calibration range? If so, were results qualified appropriately?	+	
IIIg.	-Is the readme complete? If applicable, were edits or discrepancies listed in the readme?	—	

Notes: *see discrepancy sheet

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Stantec.
2890 East Cottonwood Parkway Suite 300
Salt Lake City, UT 84121
ATTN: Ms. Betty VanPelt

May 10, 2017

SUBJECT: Monsanto, P4 Background, Data Validation

Dear Ms. VanPelt,

Enclosed is the final validation report for the fraction listed below. This SDG was received on May 3, 2017. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #38577:

SDG #	**Fraction**
L36360	Metals by ICPMS SW-846 Method 6020

The data verification was performed under Stage 2B & 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- QAPP Addendum, MWH 2009, to the project SAP, April, 2004
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

94 pages-SF EDD 1 WEEK TAT Attachment 1

90/10 2B/4 LDC #38577 (Stantec Consulting Services, Inc.-Salt Lake City, UT / Monsanto, P4 Background)

LDC	SDG#	DATE REC'D	(3) DATE DUE	3 SPLP Metals (6020)																																	
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	L36360	05/03/17	05/10/17	0	10																																
A	L36360	05/03/17	05/10/17	0	2																																
Total	T/CR			0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12

Shaded cells indicate Stage 4 review (all other cells are Stage 2B review and calibration data validation only). These sample counts do not include MS/MSD, and DUPs. s:\Stantec\Monsanto P4\38577ST.wpd

Report# 38577A4a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Monsanto, P4 Production LLC

Report Date: May 4, 2017

Matrix: Water

Parameters: Metals by ICPMS SW-846 Method 6020

Validation Level: Stage 2B & 4

Laboratory: ACZ Laboratories, Inc.

Sample Delivery Group (SDG): L36360

Sample Identification	Collection Date	Laboratory Sample Identification
SB-07GT(4-21)**	04/04/17	L36360-01**
TP-12(7-9)	04/04/17	L36360-02
TP-12(7-9) DUPLICATE	04/04/17	L36360-03
TP-14(3-7)	04/04/17	L36360-04
RC-01V1(5-15)	04/04/17	L36360-05
RC-10V1(5-22)**	04/04/17	L36360-06**
RC-03V(20-30)	04/04/17	L36360-07
RC-07V1(40-55)	04/04/17	L36360-08
RC-11V1(30-40)	04/04/17	L36360-09
RC-28V1(37-48)	04/04/17	L36360-10
RC-40V1(22-37)	04/04/17	L36360-11
RC-40V1(22-37) DUPLICATE	04/04/17	L36360-12
SB-07GT(4-21)MS	04/04/17	L36360-01MS
SB-07GT(4-21)MSD	04/04/17	L36360-01MSD
SB-07GT(4-21)DUP	04/04/17	L36360-01DUP

**Indicates sample underwent Stage 4 review.

Introduction

This data review covers 15 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analysis was performed per the EPA SW 846 Method noted below:

- Method 6020 ICPMS: Arsenic, Cadmium, and Selenium.

This review follows the specific guidance in the QAPP Addendum (MWH 2009) to the project SAP (April, 2004) using the intent of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as applicable to the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were reviewed for a minimum of 10% of the Sample Delivery Groups (SDGs) or laboratory data package deliverables associated with this sampling event as specified in the QAPP Addendum. This package includes raw data review.

The following are definitions of the data qualifiers:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximated concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

R The result is unusable. The sample result is rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

The following are not data qualifiers but are provided for the purpose of evaluating the laboratory's performance:

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

The following "Reason Codes" will be applied as applicable to the validated data:

1 Holding Time
2 Sample Preservation (including receipt temperature)
3 Sample Custody
4 Missing Deliverable
5 ICPMS Tune
6 Initial Calibration
7 Initial Calibration Verification
8 Continuing Calibration Verification
9 Low-Level Calibration Check Sample
10 Calibration Blank
11 Laboratory or Preparation Blank
12 ICPMS or ICP Interference Check Standard
13 Laboratory Control Sample or Laboratory Control Sample Duplicate Recovery
14 Laboratory Control Sample Precision
15 Laboratory Duplicate Precision
16 Matrix Spike or Matrix Spike Duplicate Recovery
17 Matrix Spike/Matrix Spike Duplicate Precision
18 ICPMS or ICP Serial Dilution
19 ICPMS Internal Standard
20 Field Replicate Precision
21 Equipment Rinsate Blank
22 Linear Range Exceeded
23 Other reason
26 Source Water Blank

I(a). Deliverables and Chain-of-Custody Documentation

All deliverables were present and complete including the Case Narrative with full explanation of corrective actions and all package deliverables defined in the project SAP.

The chain-of-custodies were complete for sample identification, matrix, methods, preservation, dates and times of collection, dates and times of relinquishment and receipt. Any corrections performed properly (i.e., crossed-out with a single line; correction visible, neat, and clear; and with initials of individual making correction).

I(b). Preservation and Holding Times

All technical holding time requirements were met: 6 months for water and soil (note NIST soil standard reference samples are valid for up to 3 years).

All samples were received intact with proper preservation (pH < 2 for water).

II. ICP-MS Tune Analysis

ICP-MS tuning was performed by the laboratory. All isotopes in the tuning solution mass resolution were within 0.1 amu. Resolutions are < 0.9 amu full width at 10% peak height.

The percent relative standard deviations (%RSD) of all isotopes in the tuning solution were less than or equal to 5.0%.

III. Calibration

An initial calibration was performed each day of analysis. The frequency and analysis criteria (90-110%) of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

The low-level initial calibration verification (LLICV) and low-level continuing calibration verifications (LLCCVs) standard frequency and limits (70-130%) were met. Limit for maganese is 50 -150%. Only undetected data, or values < 2 x RL are qualified or impacted.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

ICP interference check samples were reviewed for each analyte as applicable. Percent recovery (%R) of the ICSAB were within the QC limits of 80-120%.

VI. Laboratory Control Sample (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 80-120% limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPDs) were within the acceptance criteria of ≤ 20% for water or ≤ 35% for soil. For low level results, <5 x RL, a difference of ± 1 x RL is allowed for water and ± 2 x RL for soils.

VIII. Spike Sample Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Spike amounts were reviewed and concentrations are noted to be at or near the mid-point of the calibration. Percent recoveries (%R) were within 75-125% and relative percent differences (RPD) were within 20% limits (35% soils).

IX. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria of ±10% difference for values greater than 50 times the lower limit of quantitation (i.e., the method detection limits [MDLs]) were met.

X. ICP-MS Internal Standards

All internal standard percent recoveries (%R) were within 70-130% or a 2x dilution was run with acceptable recoveries.

XI. Field Replicates

Field replicate samples were collected in duplicate. Control limit(s) were not established in the SAP since the average of the replicate samples is used as the final value for the field location. Results of field replicate samples or other project samples were not qualified based on the precision of field replicate samples.

XII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2B criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

Metals - Data Qualification Summary - SDG L36360

No Sample Data Qualified in this SDG

Metals - Laboratory Blank Data Qualification Summary - SDG L36360

No Sample Data Qualified in this SDG

Metals - Field Blank Data Qualification Summary - SDG L36360

No Sample Data Qualified in this SDG

LDC #: 38577A4a

SDG #: L36360

Laboratory: ACZ Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 5/3/17

Page: 1 of 1

Reviewer: a

2nd Reviewer: JB

METHOD: SPLP Metals (EPA SW 846 Method 6020)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	A	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	A	
VIII.	Duplicate sample analysis	A	
IX.	Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	not reviewed for Stage 2B
XIII.	Sample Result Verification	A	Not reviewed for Stage 2B validation.
XIV.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	SB-07GT(4-21)**	L36360-01**	Soil	04/04/17
2	TP-12(7-9)	L36360-02	Soil	04/04/17
3	TP-12(7-9) DUPLICATE	L36360-03	Soil	04/04/17
4	TP-14(3-7)	L36360-04	Soil	04/04/17
5	RC-01V1(5-15)	L36360-05	Soil	04/04/17
6	RC-10V1(5-22)**	L36360-06**	Soil	04/04/17
7	RC-03V(20-30)	L36360-07	Soil	04/04/17
8	RC-07V1(40-55)	L36360-08	Soil	04/04/17
9	RC-11V1(30-40)	L36360-09	Soil	04/04/17
10	RC-28V1(37-48)	L36360-10	Soil	04/04/17
11	RC-40V1(22-37)	L36360-11	Soil	04/04/17
12	RC-40V1(22-37) DUPLICATE	L36360-12	Soil	04/04/17
13	SB-07GT(4-21)MS	L36360-01MS	Soil	04/04/17
14	SB-07GT(4-21)MSD	L36360-01MSD	Soil	04/04/17
15	DUP			

LDC #: 38557A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: JB

Method: Metals (EPA SW 846 Method 6010/6020/7000)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were the low standard checks within 70-130%	✓			
Were all initial calibration correlation coefficients within limits as specified by the method?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.				
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 38577A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: JB

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.			✓	
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.			✓	
Target analytes were detected in the field duplicates.			✓	
XIII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 38S7MA4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: a
2nd reviewer: JB

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-12		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
QC: 13,14		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,

Comments: Mercury by CVAA if performed

LDC #: 38577A4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: a
2nd Reviewer: JB

METHOD: Trace metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
	ICP (Initial calibration)						
ICV	ICP/MS (Initial calibration)	As	0.05038	0.05	101	101	Y
	CVAA (Initial calibration)						
	ICP (Continuing calibration)						
CCV	ICP/MS (Continuing calibration)	Cd	0.1027	0.1001	103	103	Y
	CVAA (Continuing calibration)						

Comments:

CALCLC.4C4

LDC #: 38577A4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: a
2nd Reviewer: 43

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result). True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration, D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L), SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	As	0.01951	0.02004	97	97	Y
LCS	Laboratory control sample	Se	0.05036	0.05005	101	101	
13	Matrix spike	Cd	(SSR-SR) 0.051	0.05005	102	102	
13/14	Duplicate	~~Se~~	0.05527	0.05475			
5	ICP serial dilution	As	0.0002	0.001	NC	33	

Comments:

TOTCLC.4SW

LDC #: 36572A4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: OE
2nd reviewer: JB

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for As were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$\frac{1.636 ug/L}{1000} = 0.001636 mg/L$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	1	As	0.0016	0.0016	Y
	6	Se	0.0002	0.0002	Y

Note:

RECALC.4SW

LDC #: 38577

EDD POPULATION COMPLETENESS WORKSHEET

Date: 5/9/17
Page: 1 of 1
2nd Reviewer:

The LDC job number listed above was entered by JE.

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	Y	
Ib.	- All samples present/match report?	Y	
Ic.	- All reported analytes present?	Y	
Id.	- 10% or 100% verification of EDD?	Y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	Y	
IIb.	- Reason Codes used? If so, note which codes.	Y	
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	Y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	—	
IIId.	-Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	+	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	—	
IIIf.	- Were multiple results reported due to dilutions/reanalysis? If so, were results qualified appropriately?	+	
IIIg.	-Are there any discrepancies between the data packet and the EDD?	N	

Notes: *see discrepancy sheet

APPENDIX D

GEOTECHNICAL TESTING REPORTS

STRATA

A PROFESSIONAL SERVICES CORPORATION

Integrity from the Ground Up

Summary of Test Results

Project: Ballard Laboratory Testing
Client: Monsanto Company

Project Number: PO16053D
Date: 4/4/2017

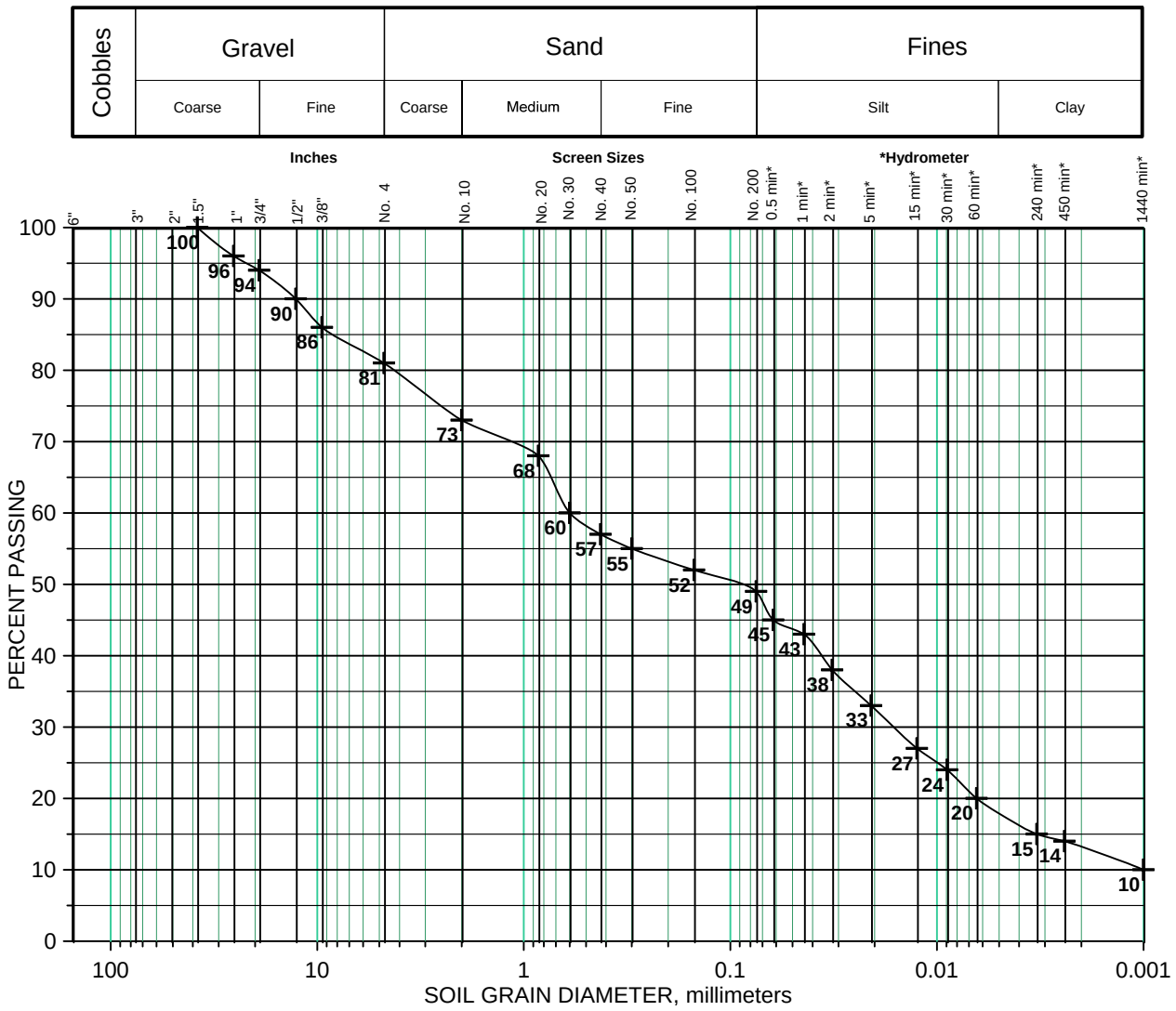
Location	Depth (feet)	Lab Number	Organic Content, (%)	Atterberg LL	Atterberg PL	Atterberg PI	Fines Class	Passing No. 200, (%)	USCS Soil Classification	Crumb Test	Double Dispersion, (%)	Course Specific Gravity	Soil Specific Gravity
SB-06GT	1.5-10	PO1600497	2.9	41	25	16	CL	49	Clayey Sand with Gravel (SC)	Highly Dispersive		ISS	2.697
SB-07GT	0-4	PO1600498	4.9	44	23	21	CL	60	Sandy Lean Clay (CL)	Highly Dispersive	62	ISS	2.719
SB-12GT	0-27	PO1600499	2.3	33	20	13	CL	38	Clayey Sand with Gravel (SC)	Dispersive		ISS	2.711
SB-07GT	4-21	PO1600509	0.7	31	17	14	CL	15	Clayey Sand with Gravel (SC)	Nondispersive	NR	ISS	2.700
SB-13AL	0-25	PO1600500	1.2	32	17	15	CL	13	Clayey Sand with Gravel (SC)	Dispersive		ISS	2.642
SB-15AL	0-25	PO1600503	1.2	NV	NV	NP	ML	13	Silty Sand with Gravel (SM)	Highly Dispersive	62	ISS	2.684
SB-15AL	25-50	PO1600504	1.4	NV	NV	NP	ML	13	Silty Sand with Gravel (SM)	Highly Dispersive		ISS	2.526
SB-14AL	0-15	PO1600501	1.3	NV	NV	NP	ML	24	Silty Sand (SM)	Nondispersive	NR	ISS	2.844
SB-14AL	15-35	PO1600502	1.7	32	18	14	CL	23	Clayey Sand (SC)	Nondispersive	NR	ISS	2.810
TP-6, 7, & 9	2-5	PO1600505	2.3	37	18	19	CL	46	Clayey Sand with Gravel (SC)	Dispersive	71	2.844	2.676
TP-8	3.5-13	PO1600510	0.9	33	19	14	CL	13	Clayey Gravel with Sand (GC)	Nondispersive	17	2.637	2.840
TP-9	7-14	PO1600511	0.5	30	18	12	CL	12	Poorly graded Gravel with Clay and Sand (GP-GC)	Nondispersive	NR	2.702	2.762
TP-12	2-4	PO1600506	3.1	38	21	17	CL	44	Clayey Gravel with Sand (GC)	Nondispersive	0	2.684	2.587
TP-14	3-7	PO1600512	1.2	41	25	16	CL	13	Clayey Gravel with Sand (GC)	Nondispersive	8	2.721	2.682
TP-15 & 16	2-13	PO1600507	1.7	36	18	18	CL	29	Clayey Sand with Gravel (SC)	Nondispersive	7	2.749	2.629
TP-20	1-4	PO1600508	3.1	41	16	25	CL	46	Clayey Sand with Gravel (SC)	Nondispersive	13	ISS	2.705

NV=No Value, NP=Non-Plastic

NR= Not Requested ISS = Insufficient Sample Size

GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600497
Sample Identification: SB-06GT 1.5-10'
Sample Classification: Clayey Sand with Gravel (SC)
Date tested: 1/1/2017 By: J. Kofoed - STRATA



Reviewed by: Michael Hitchcock

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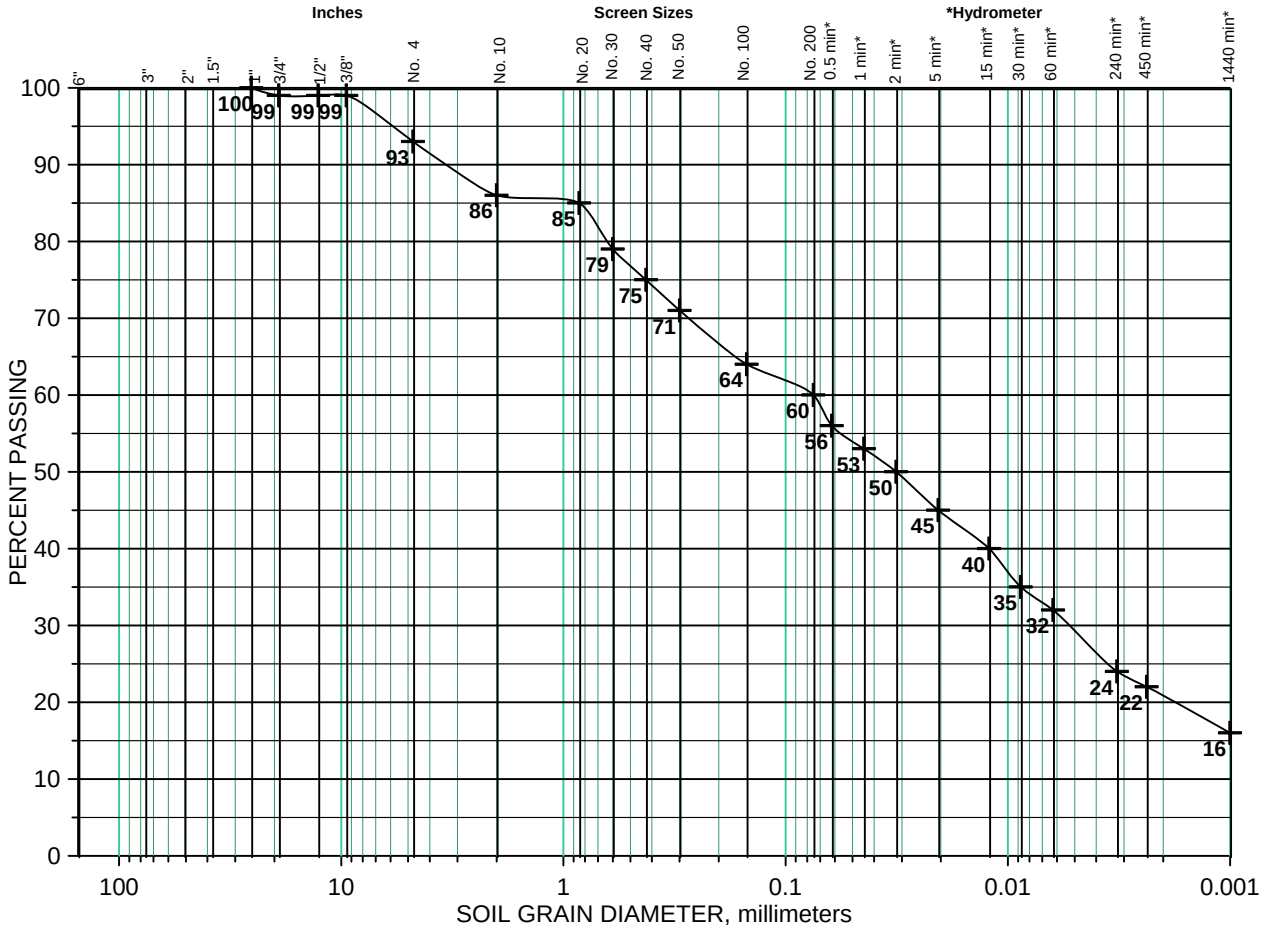
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600498
Sample Identification: SB-07GT 0-4'
Sample Classification: Sandy Lean Clay (CL)
Date tested: 1/1/2017 By: J. Kofoed - STRATA

Cobbles	Gravel		Sand			Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Reviewed by: Michael Hitchcock

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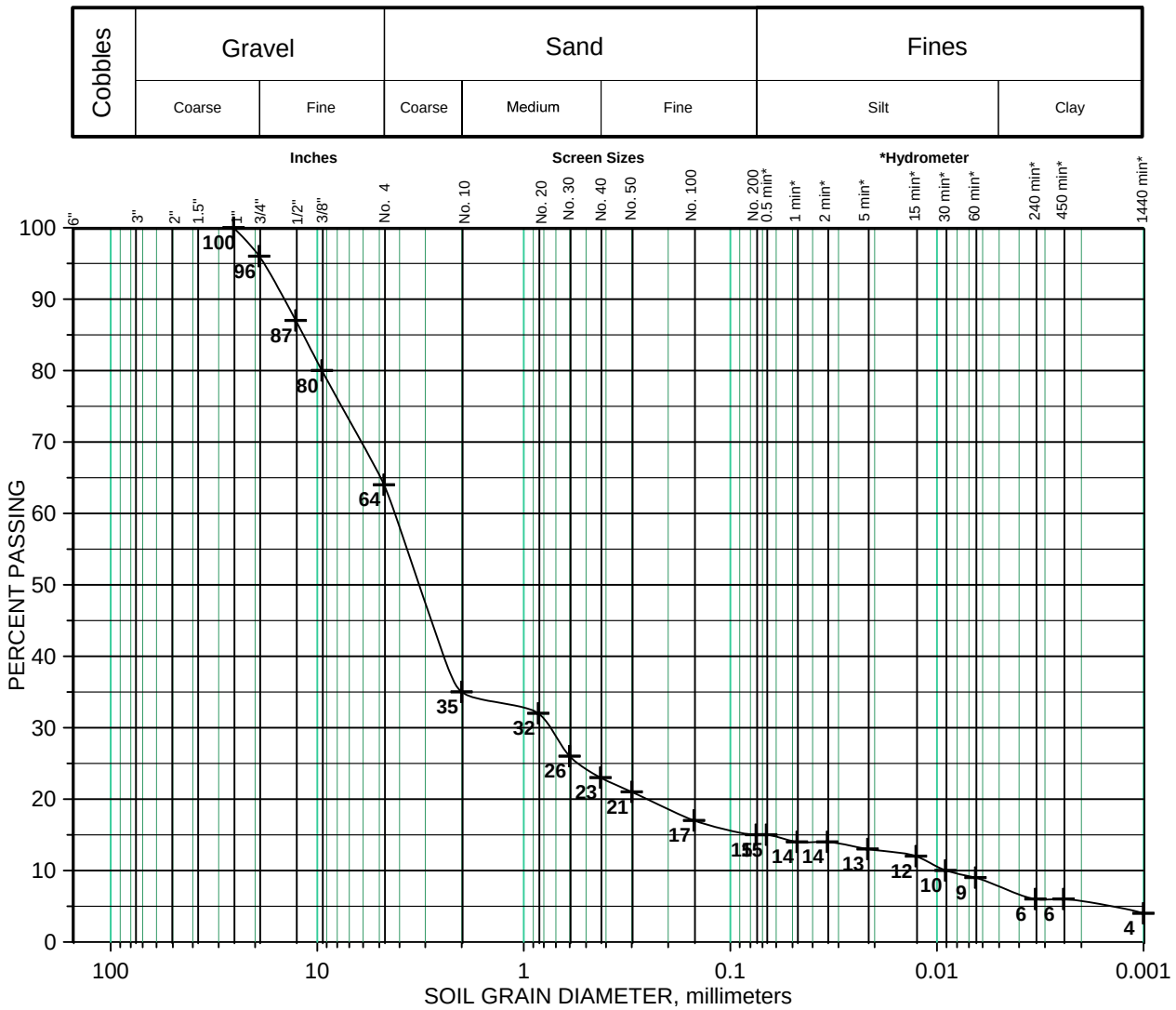
Integrity from the Ground Up

GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600509
Sample Identification: SB-07GT 4-21'
Sample Classification: Clayey Sand with Gravel (SC)
Date tested: 1/1/2017 By: J. Kofoed - STRATA

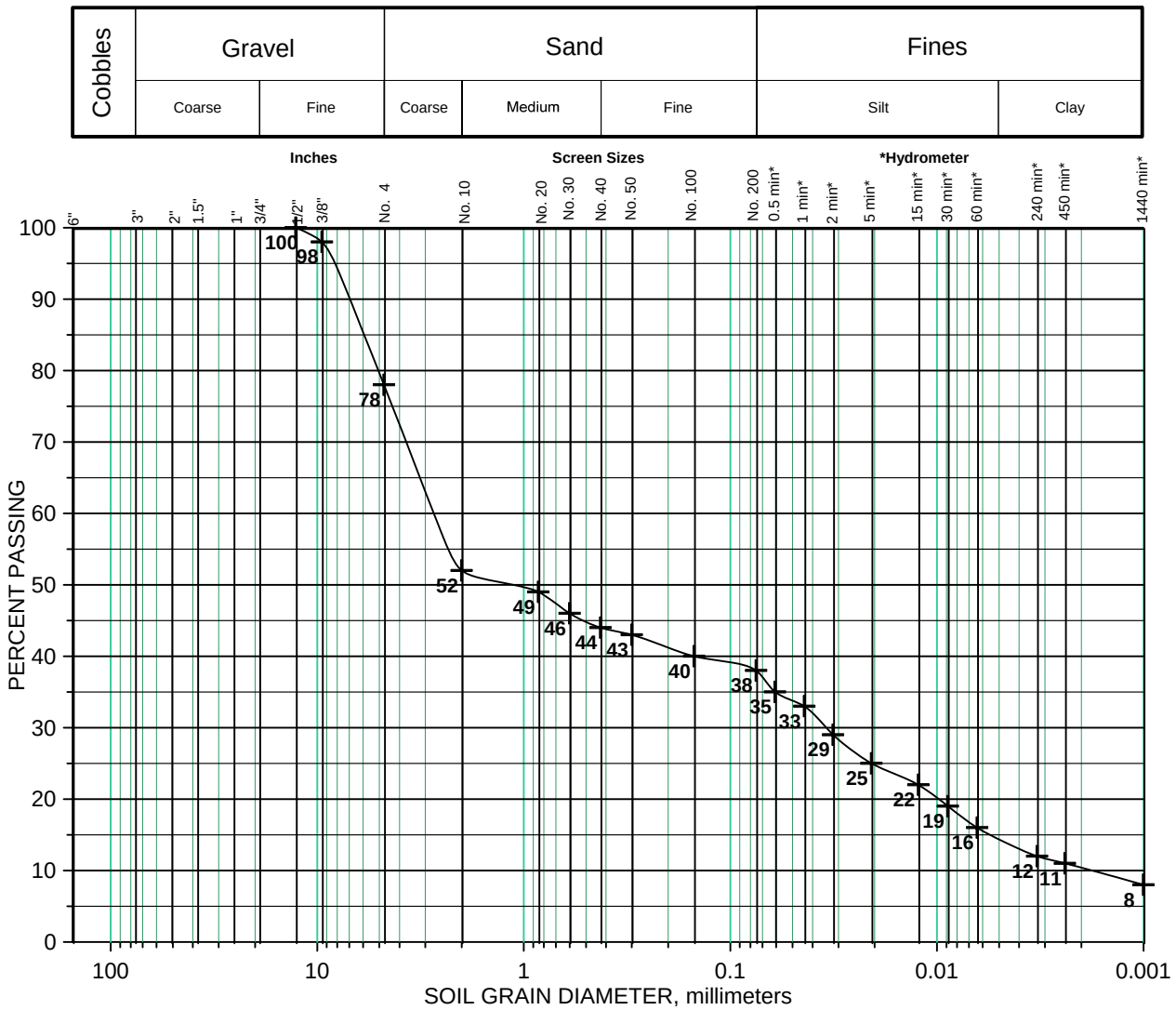


Reviewed by: Michael Hitchcock

STRATA
A Professional Services Corporation
Integrity from the Ground Up

GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600499
Sample Identification: SB-12GT 0-27'
Sample Classification: Clayey Sand with Gravel (SC)
Date tested: 1/1/2017 By: J. Kofoed - STRATA

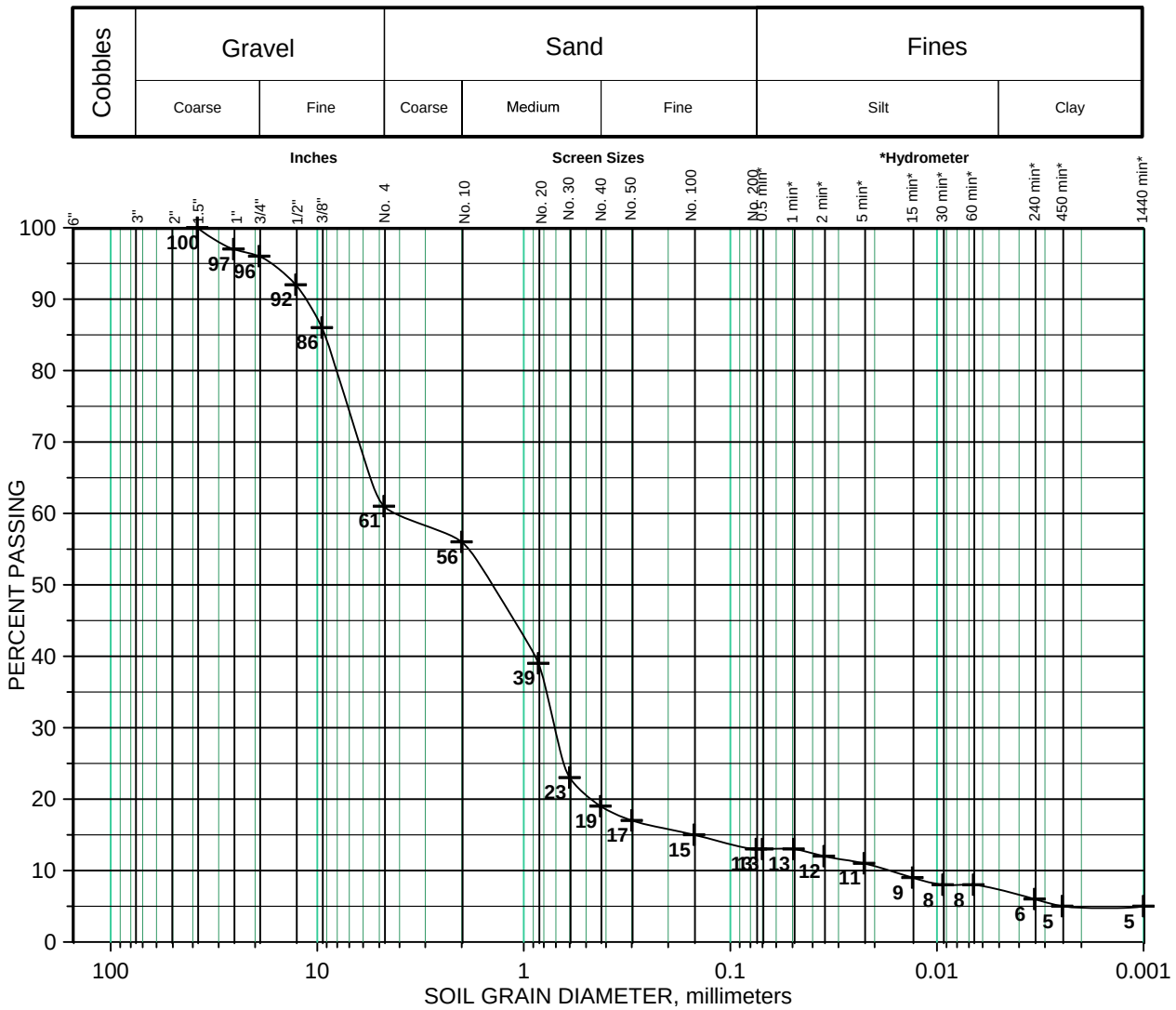


Reviewed by: Michael Hitchcock

STRATA
A Professional Services Corporation
Integrity from the Ground Up

GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600500
Sample Identification: SB-13AL 0-25'
Sample Classification: Clayey Sand with Gravel (SC)
Date tested: 1/1/2017 By: J. Kofoed - STRATA



Reviewed by: Michael Hitchcock

STRATA
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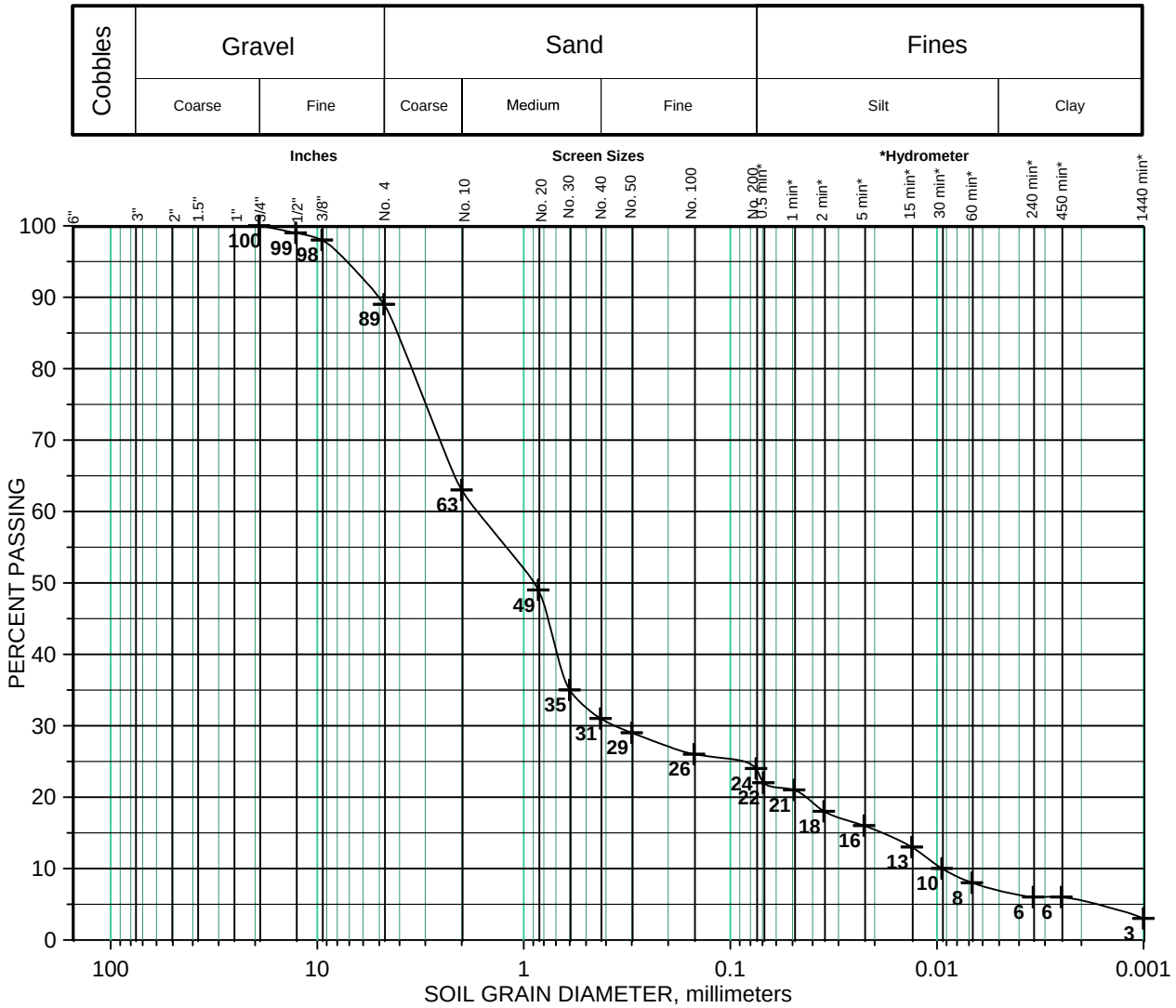
Integrity from the Ground Up

GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600501
Sample Identification: SB-14AL 0-15'
Sample Classification: Silty Sand (SM)
Date tested: 1/1/2017 By: J. Kofoed - STRATA



Reviewed by: Michael Hitchcock

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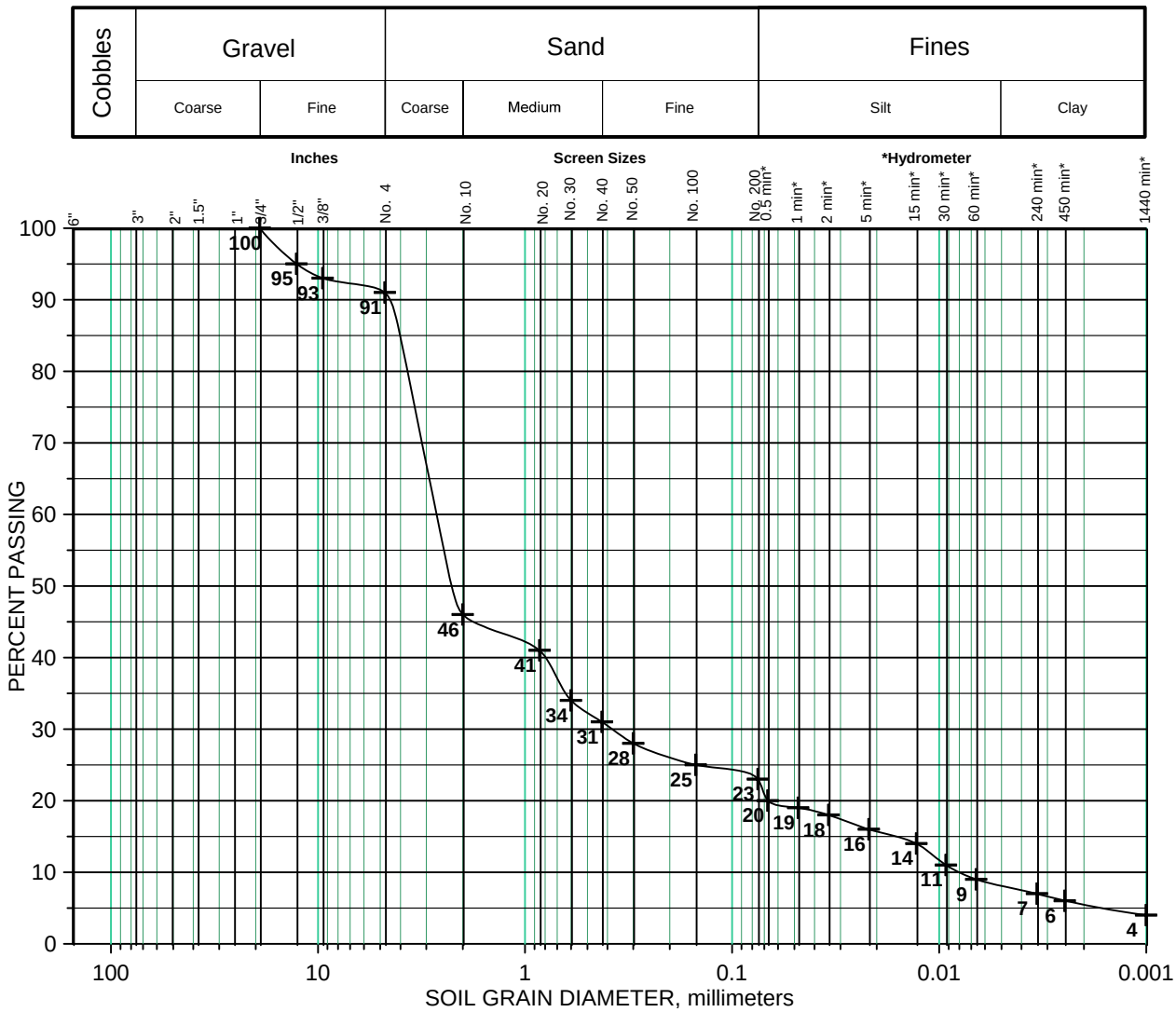
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600502
Sample Identification: SB-14AL 15-35'
Sample Classification: Clayey Sand (SC)
Date tested: 1/1/2017 By: J. Kofoed - STRATA



Reviewed by: Michael Hitchcock

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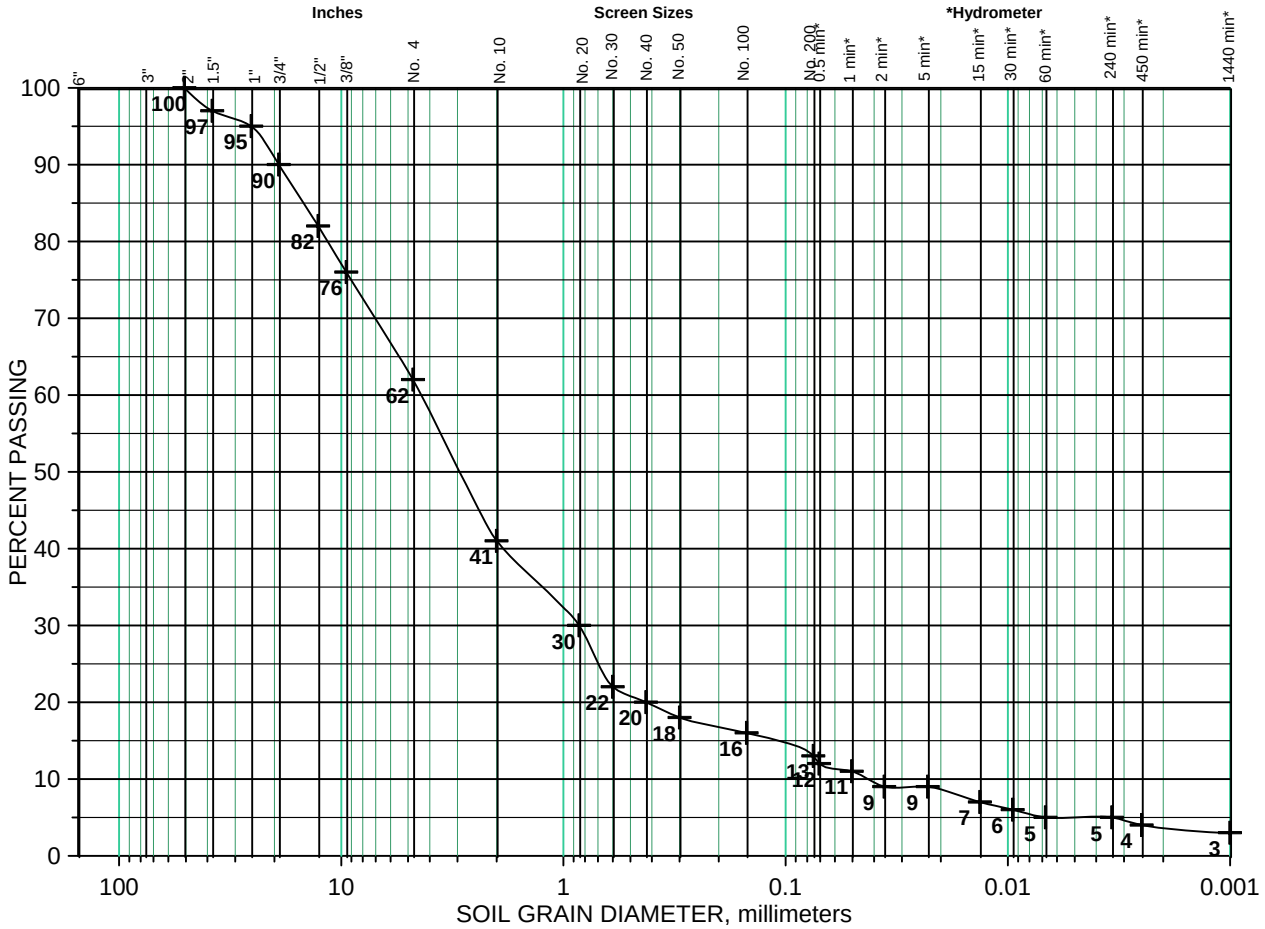
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600503
Sample Identification: SB-15AL 0-25'
Sample Classification: Silty Sand with Gravel (SM)
Date tested: 1/1/2017 By: J. Kofoed - STRATA

Cobbles	Gravel		Sand			Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Reviewed by: Michael Hitchcock

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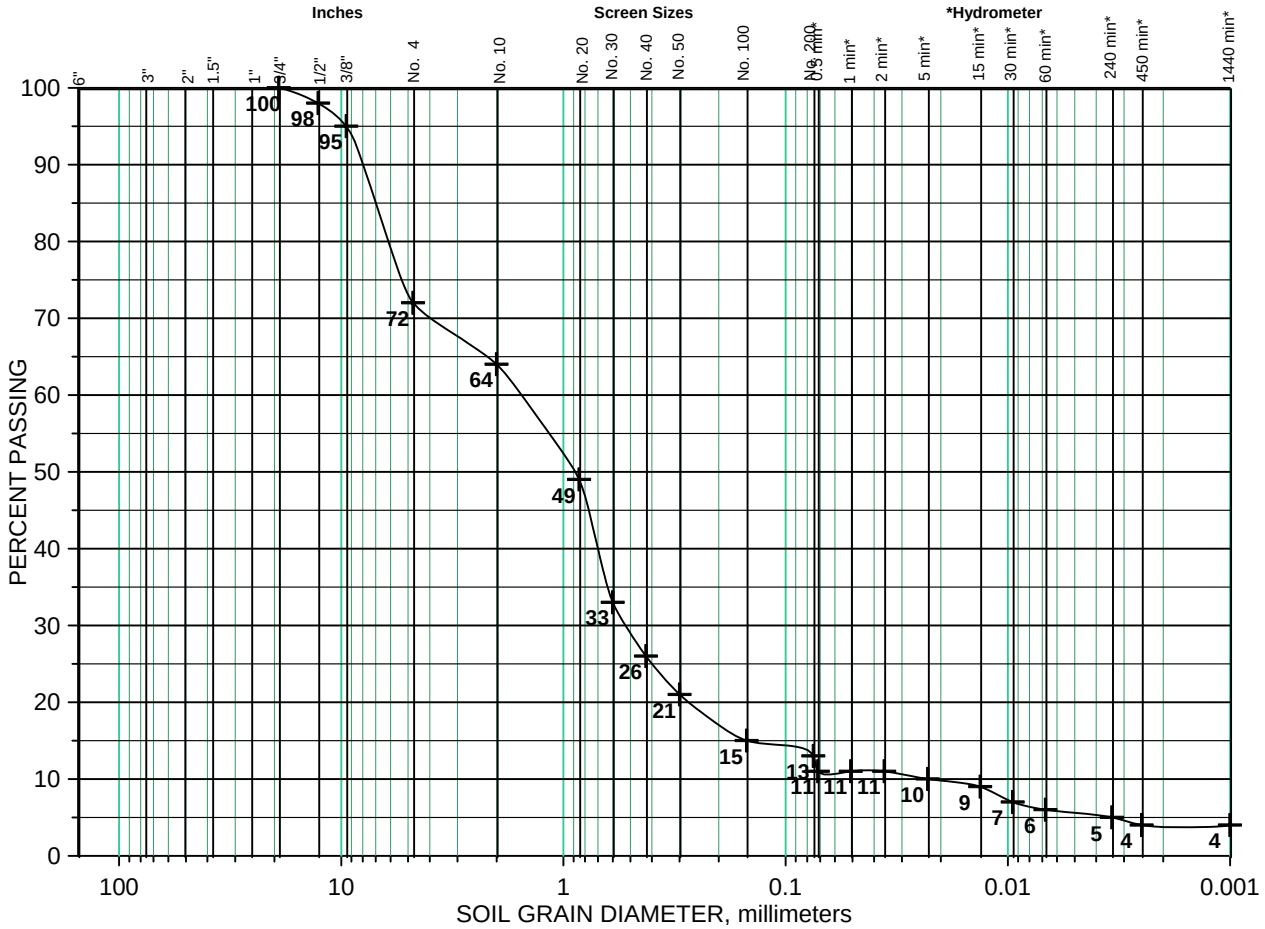
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600504
Sample Identification: SB-15AL 25-50'
Sample Classification: Silty Sand with Gravel (SM)
Date tested: 1/1/2017 By: J. Kofoed - STRATA

Cobbles	Gravel		Sand			Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



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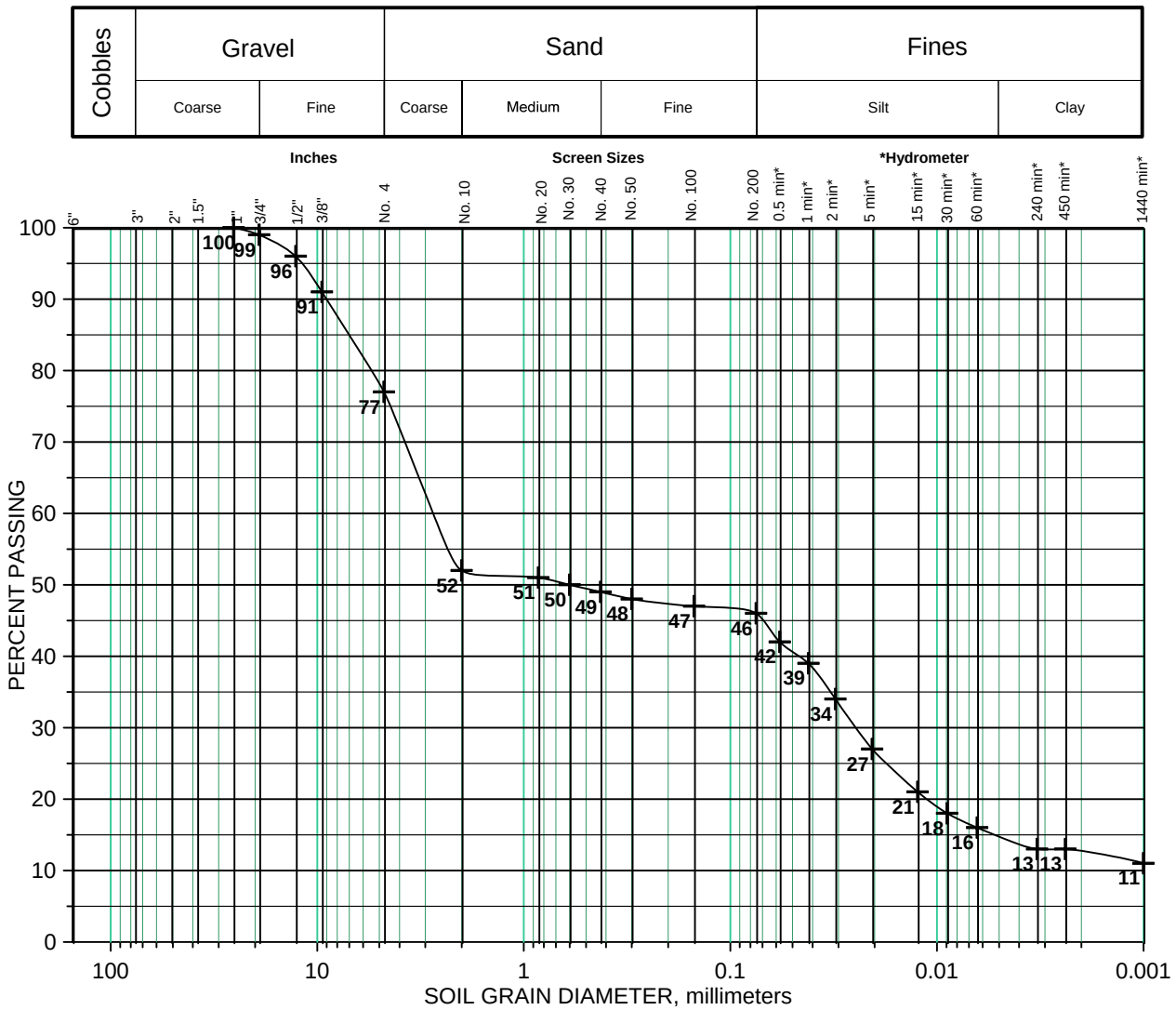
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600505
Sample Identification: TP-6, 7, & 9 2-5'
Sample Classification: Clayey Sand with Gravel (SC)
Date tested: 12/9/2016 By: J. Kofoed - STRATA



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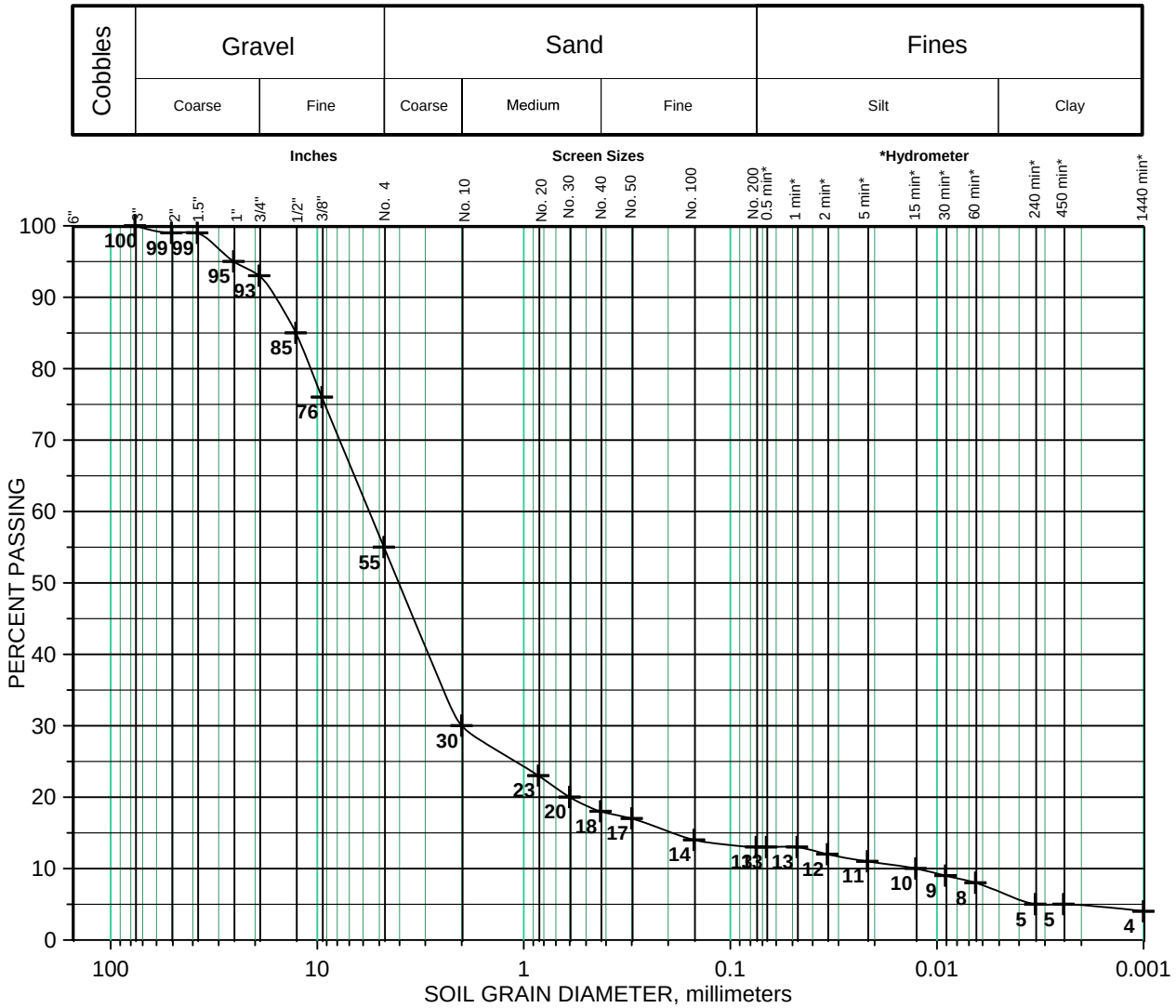
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600510
Sample Identification: TP-8 3.5-13'
Sample Classification: Clayey Gravel with Sand (GC)
Date tested: 12/9/2016 By: J. Kofoed - STRATA



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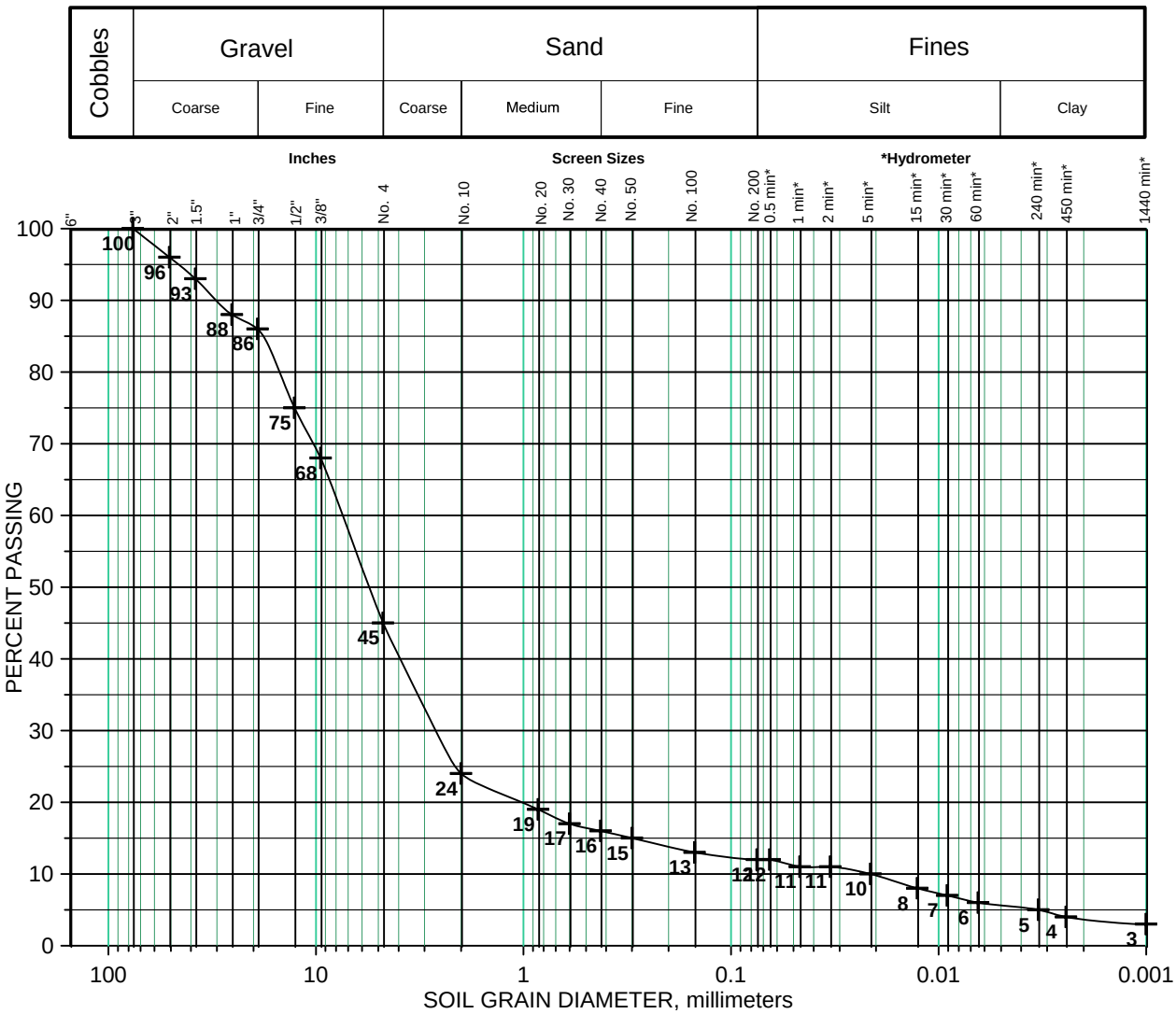
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600511 Sample
Identification: TP-9 7-14'
Sample Classification: Poorly graded Gravel with Clay and Sand (GP-GC)
Date tested: 12/9/2016 By: J. Kofoed - STRATA



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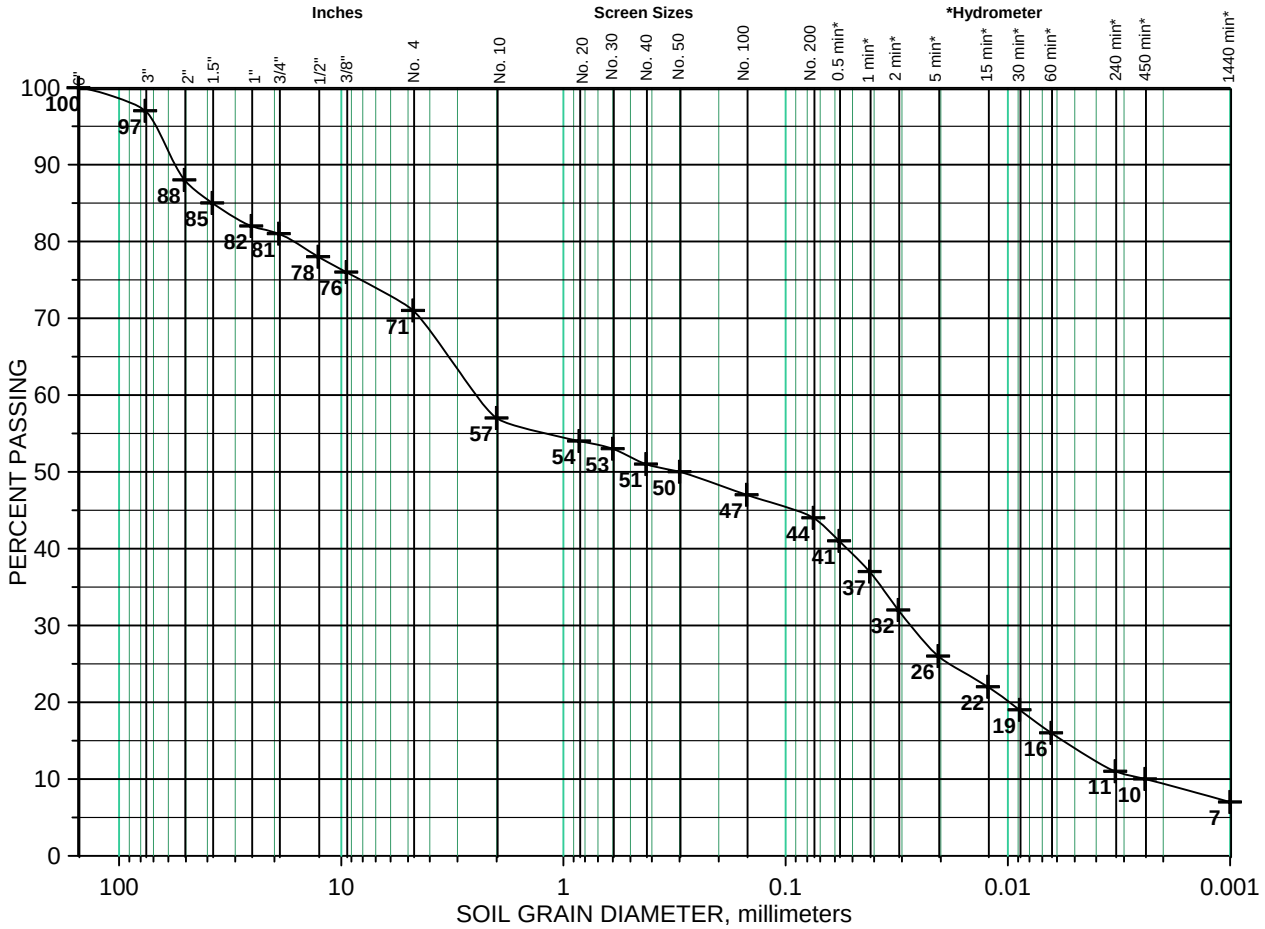
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600506
Sample Identification: TP-12 2-4'
Sample Classification: Clayey Gravel with Sand (GC)
Date tested: 12/9/2016 By: J. Kofoed - STRATA

Cobbles	Gravel		Sand			Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Reviewed by: Michael Hitchcock

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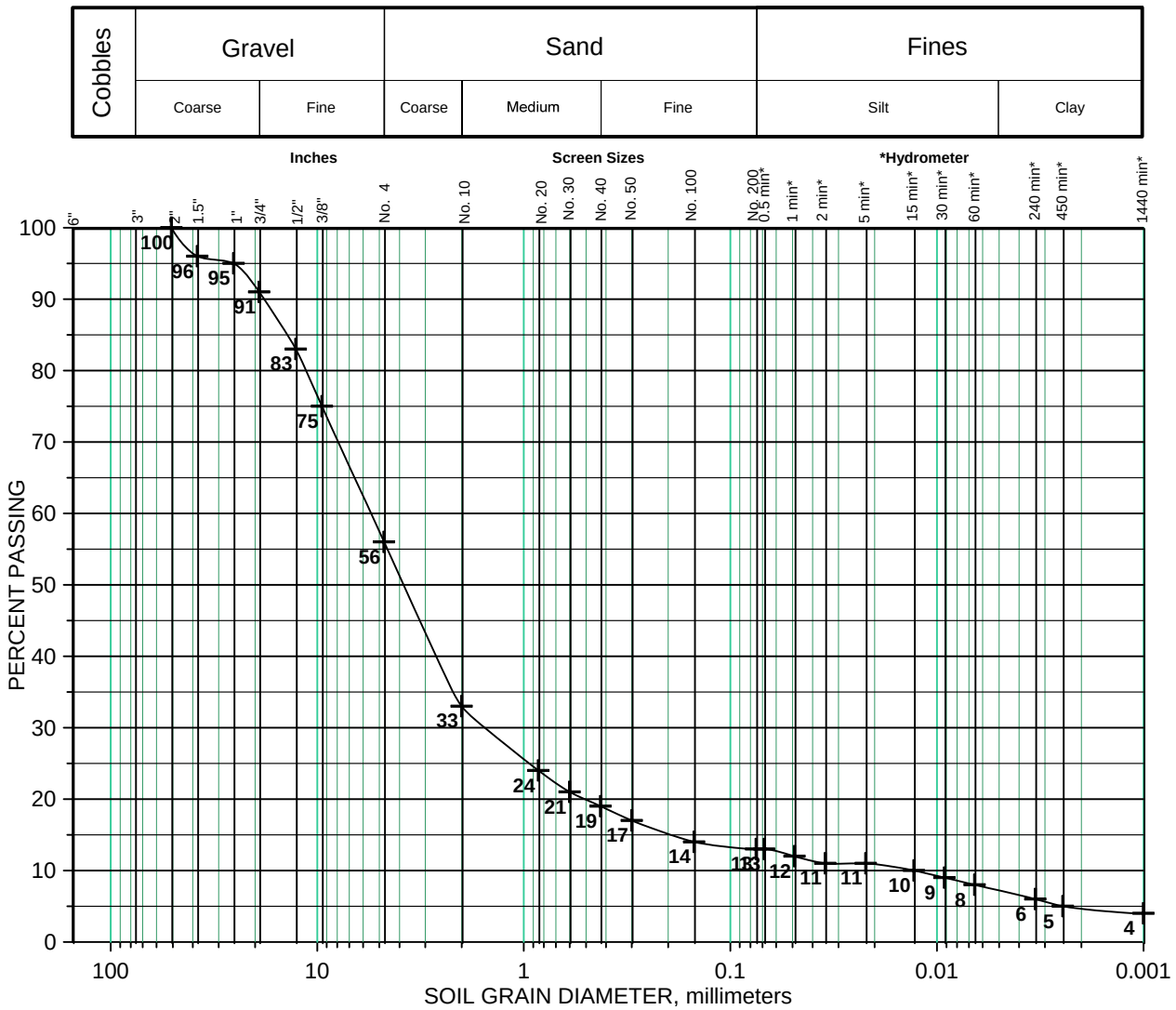
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600512
Sample Identification: TP-14 3-7'
Sample Classification: Clayey Gravel with Sand (GC)
Date tested: 12/9/2016 By: J. Kofoed - STRATA



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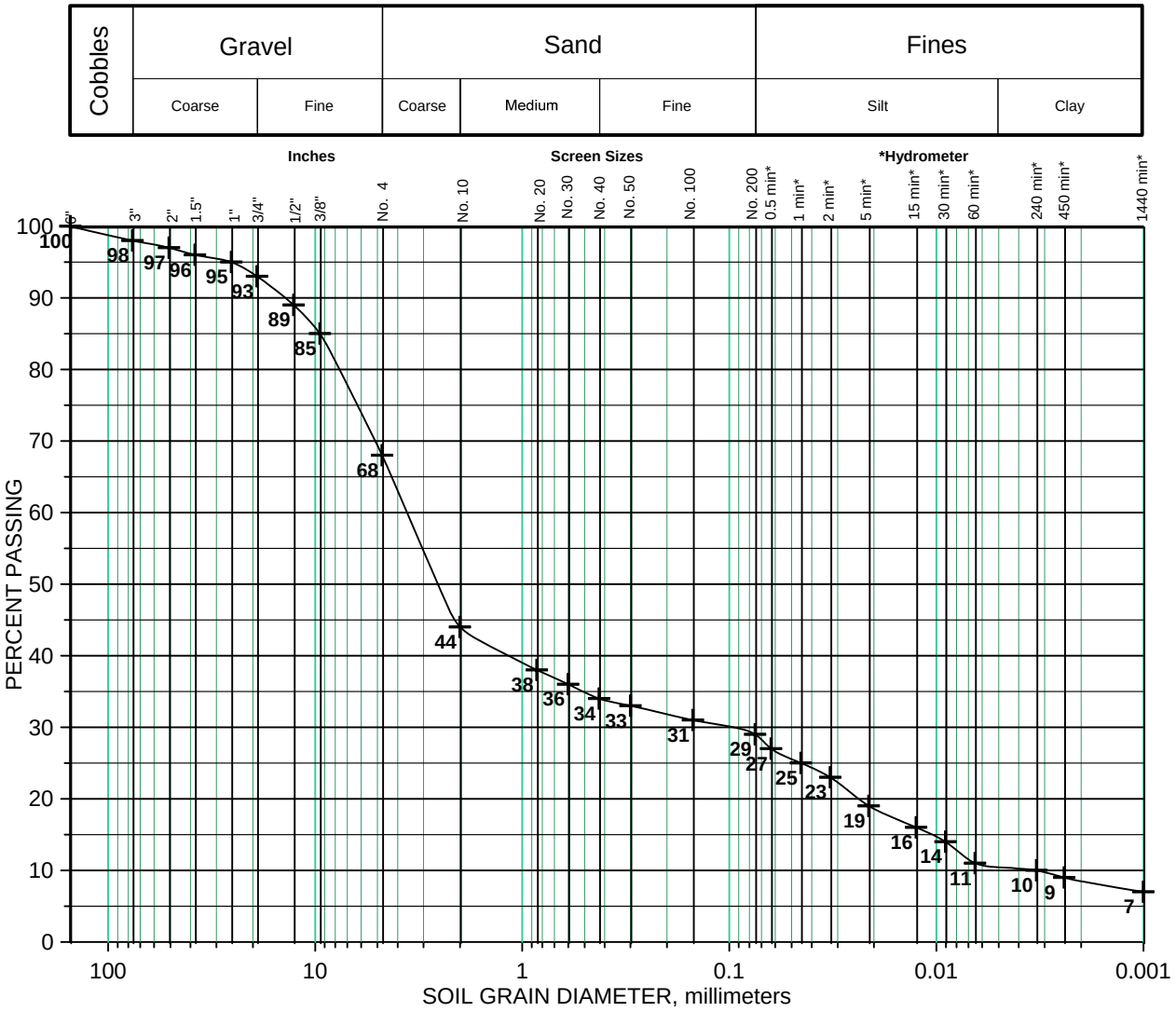
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600507
Sample Identification: TP-15 & 16 2-13'
Sample Classification: Clayey Sand with Gravel (SC)
Date tested: 12/9/2016 By: J. Kofoed - STRATA



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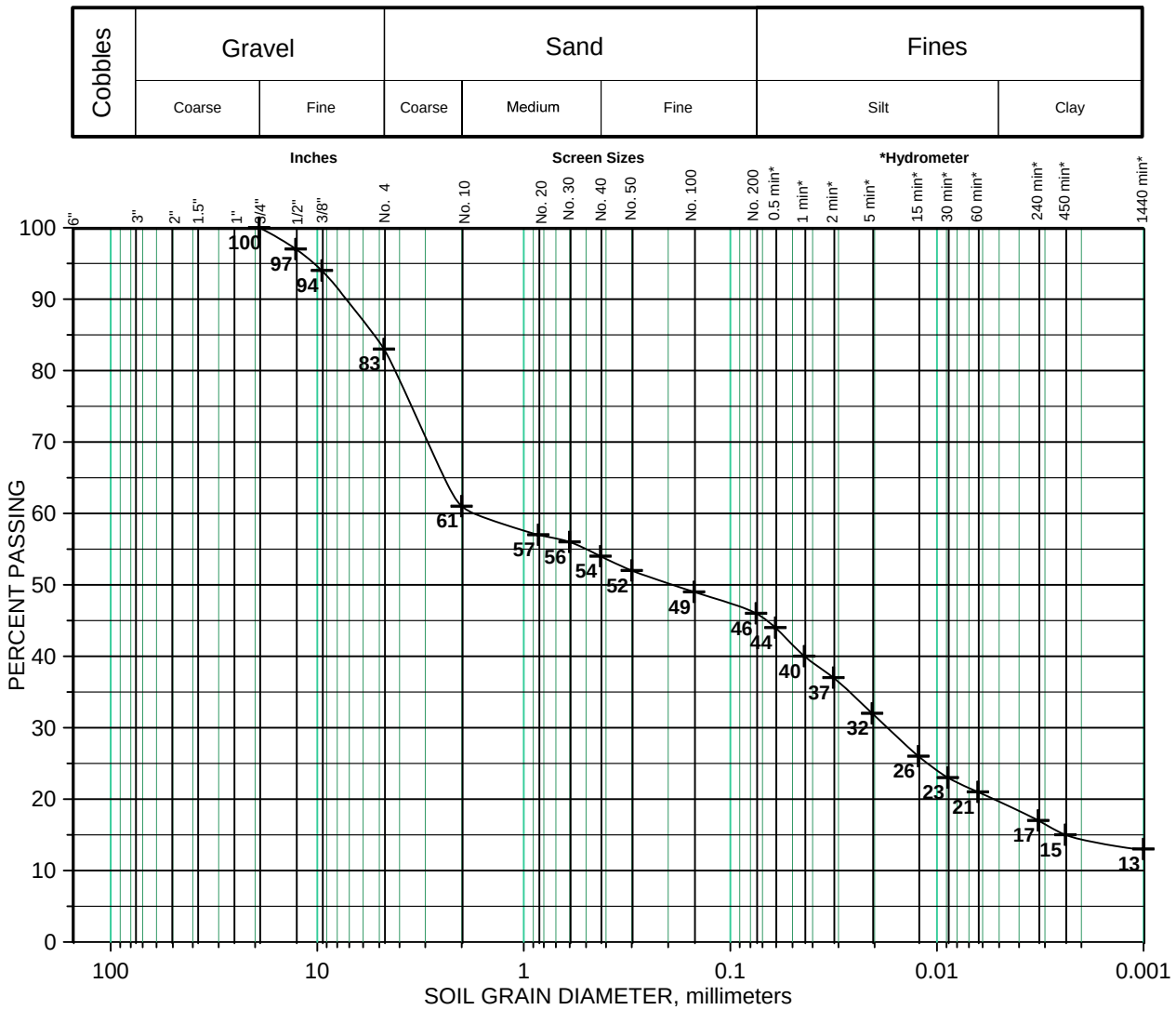
GRADATION ANALYSIS
ASTM D 422

Project: Ballard Laboratory Testing
Client: P4 Production, LLC
Project Number: PO16053D
Lab Number: PO1600508
Sample Identification: TP-20 1-4'
Sample Classification: Clayey Sand with Gravel (SC)
Date tested: 12/9/2016 By: J. Kofoed - STRATA



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MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method B

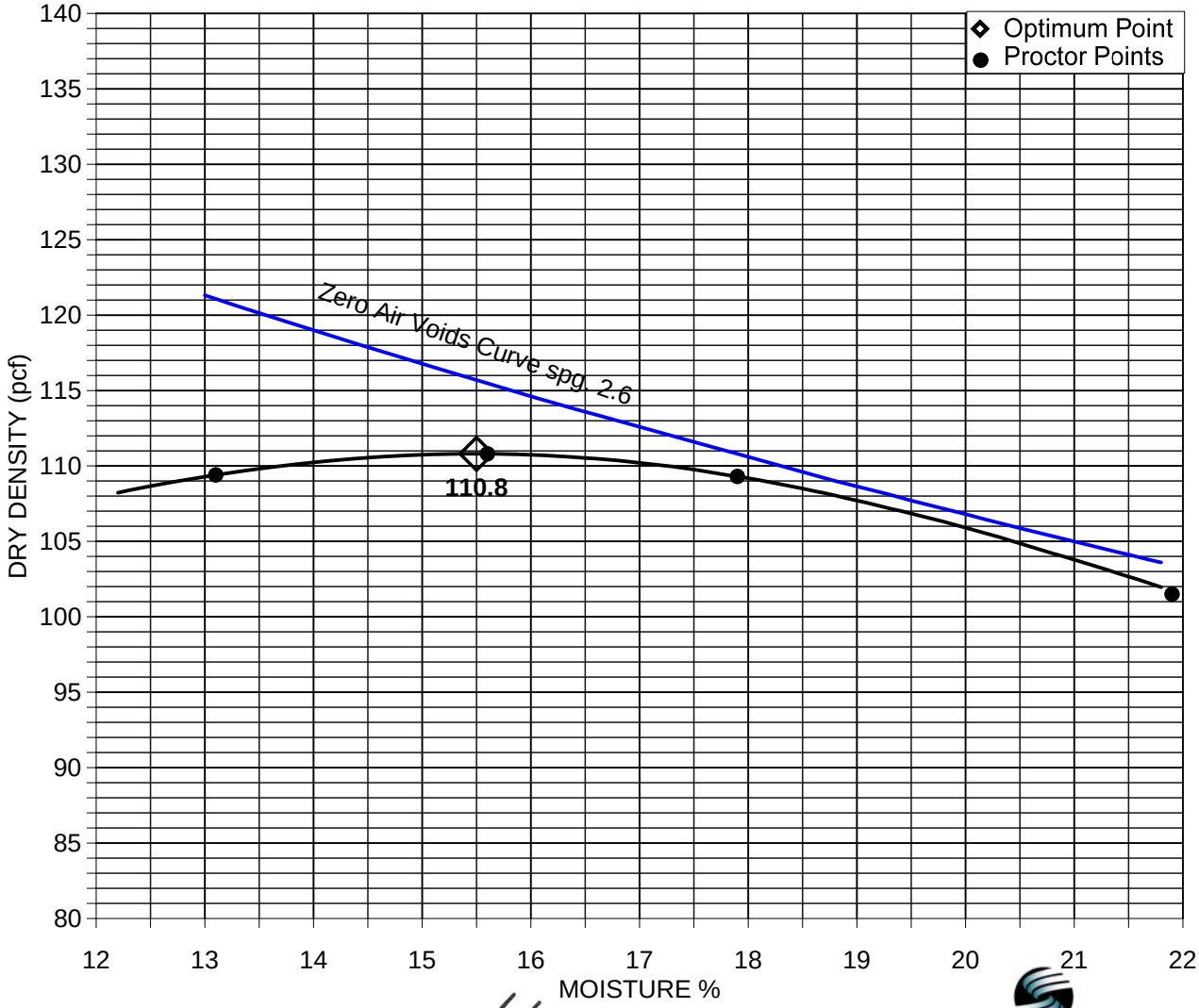
Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600497, 498, 499
Sample Source: SB-6, 7, & 12GT 0-27'
Sample Classification: Sandy Lean Clay w/ Gravel (CL)
Date Sample: 09/24/2016
Sampled By: R. Benedetti - STRATA
Date Tested: 01/24/2017
Tested By: C. Garcia - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch		
3/4 inch	100	
3/8 inch	97	100
#4 screen		

Maximum Dry Density, pcf : 110.8
Optimum Moisture Content, %: 15.5

Corrected Dry Density, pcf: 113.0
Corrected Moisture Content, %: 14.3
Coarse Aggregate Correction, %: 7.0
Bulk Specific Gravity (assumed): 2.56



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MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method B

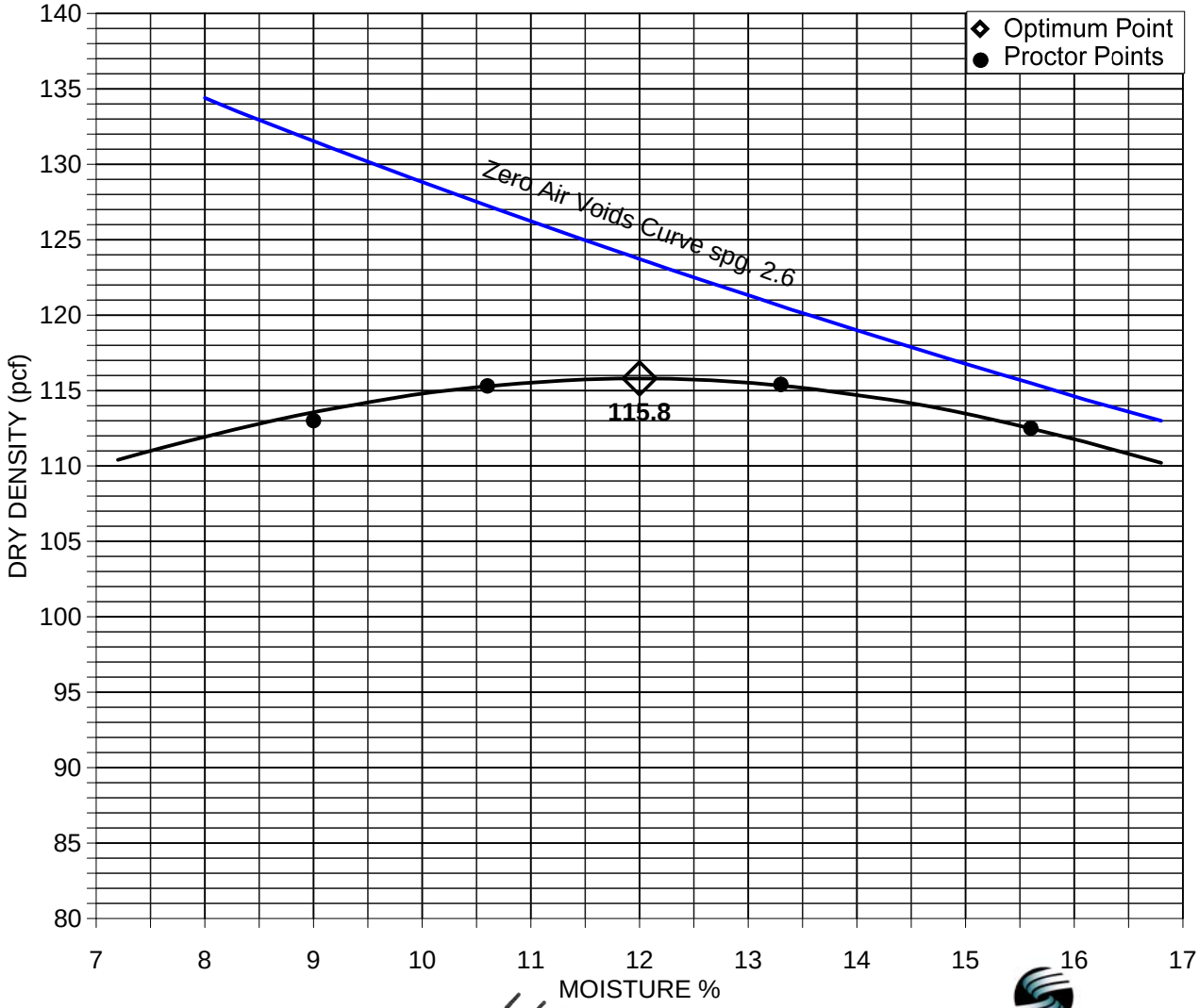
Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600500, 503, 504
Sample Source: SB-13 & 15 AL 0-50'
Sample Classification: Silty Sand with Gravel (SM)
Date Sample: 9/24/2016
Sampled By: R. Benedetti - STRATA
Date Tested: 01/24/2016
Tested By: C. Garcia - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch		
3/4 inch	100	
3/8 inch	81	100
#4 screen		

Maximum Dry Density, pcf : 115.8
Optimum Moisture Content, %: 12.0

Corrected Dry Density, pcf: 122.0
Corrected Moisture Content, %: 9.0
Coarse Aggregate Correction, %: 19.0
Bulk Specific Gravity (assumed): 2.56



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MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method B

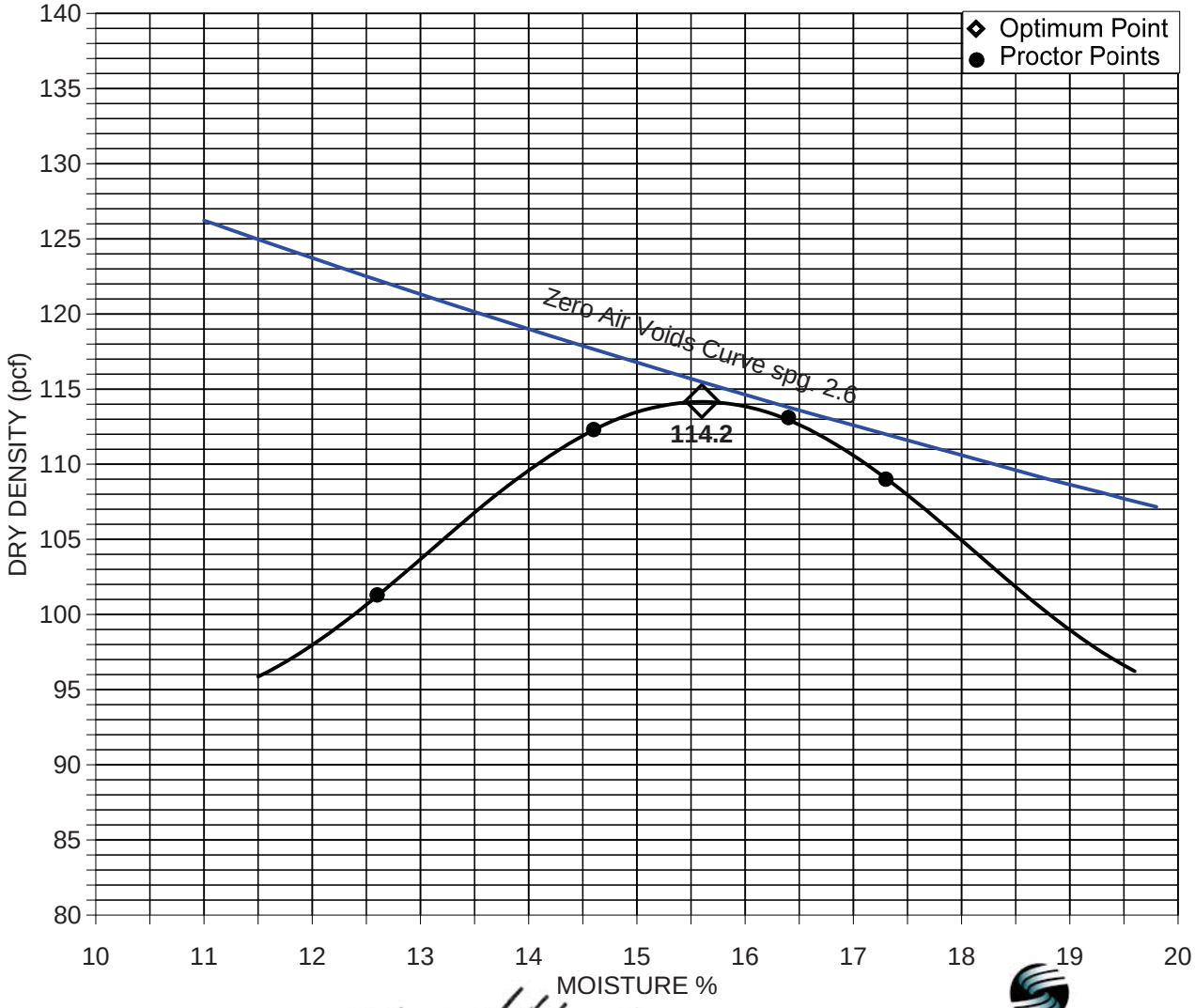
Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600501 & 502 Sample
Source: SB-14AL 0-35'
Sample Classification: Clayey Sand (SC)
Date Sample: 09/24/2016
Sampled By: B. Keyes - STRATA
Date Tested: 01/24/2016
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch		
3/4 inch	100	
3/8 inch	95	100
#4 screen		

Maximum Dry Density, pcf : 114.2
Optimum Moisture Content, %: 15.6

Corrected Dry Density, pcf: 115.8
Corrected Moisture Content, %: 14.8
Coarse Aggregate Correction, %: 5.0
Bulk Specific Gravity (assumed): 2.56



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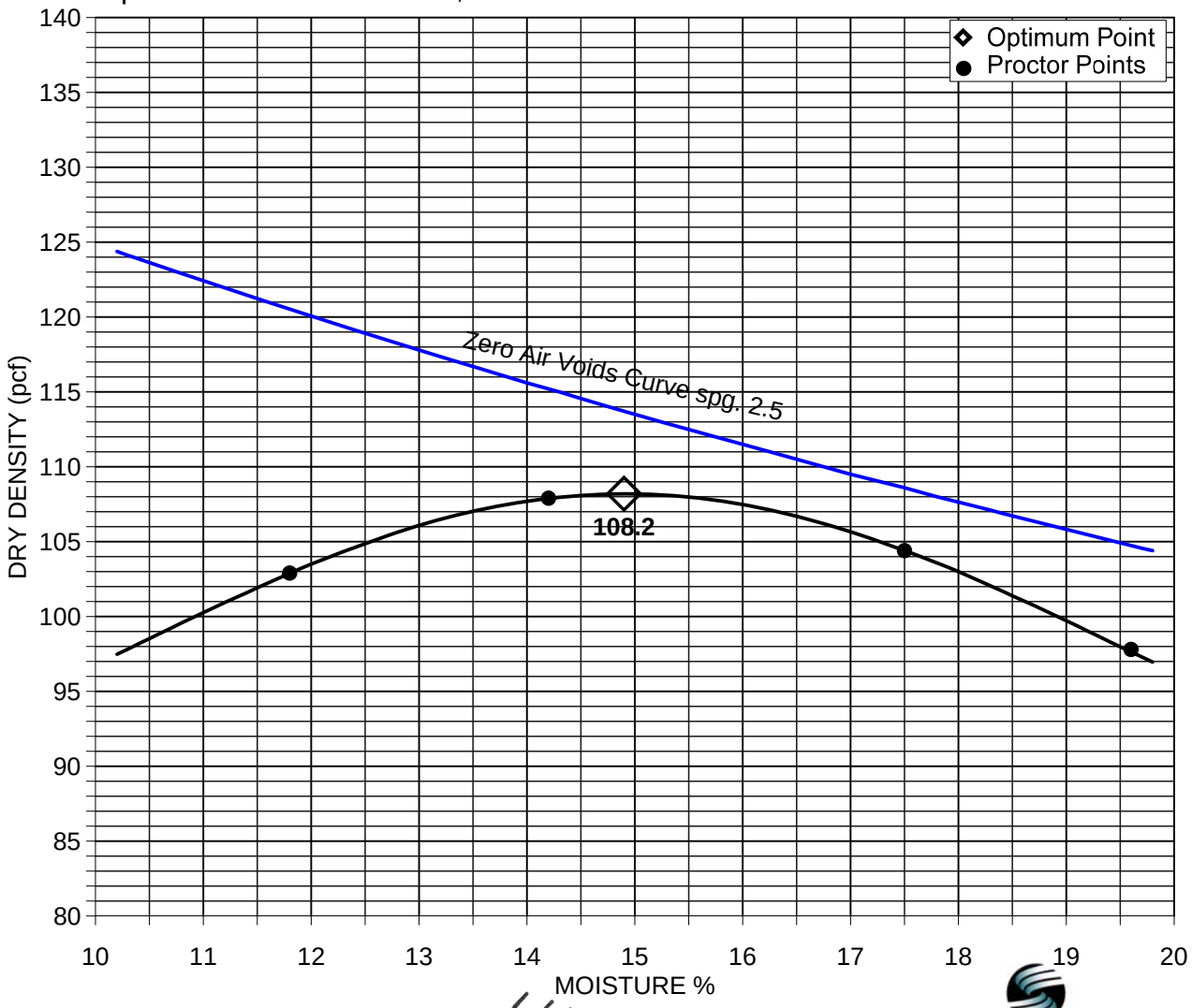
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600505
Sample Source: TP-6, 7, & 9 2-5'
Sample Classification: Clayey Sand with Gravel (SC)
Date Sampled: 09/24/2016
Sampled By: R. Bendetti - STRATA
Date Tested: 11/21/2016
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	99	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 108.2
Optimum Moisture Content, %: 14.9



Reviewed By: Michael Hitchcock

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Integrity from the Ground Up

MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D689
Method C

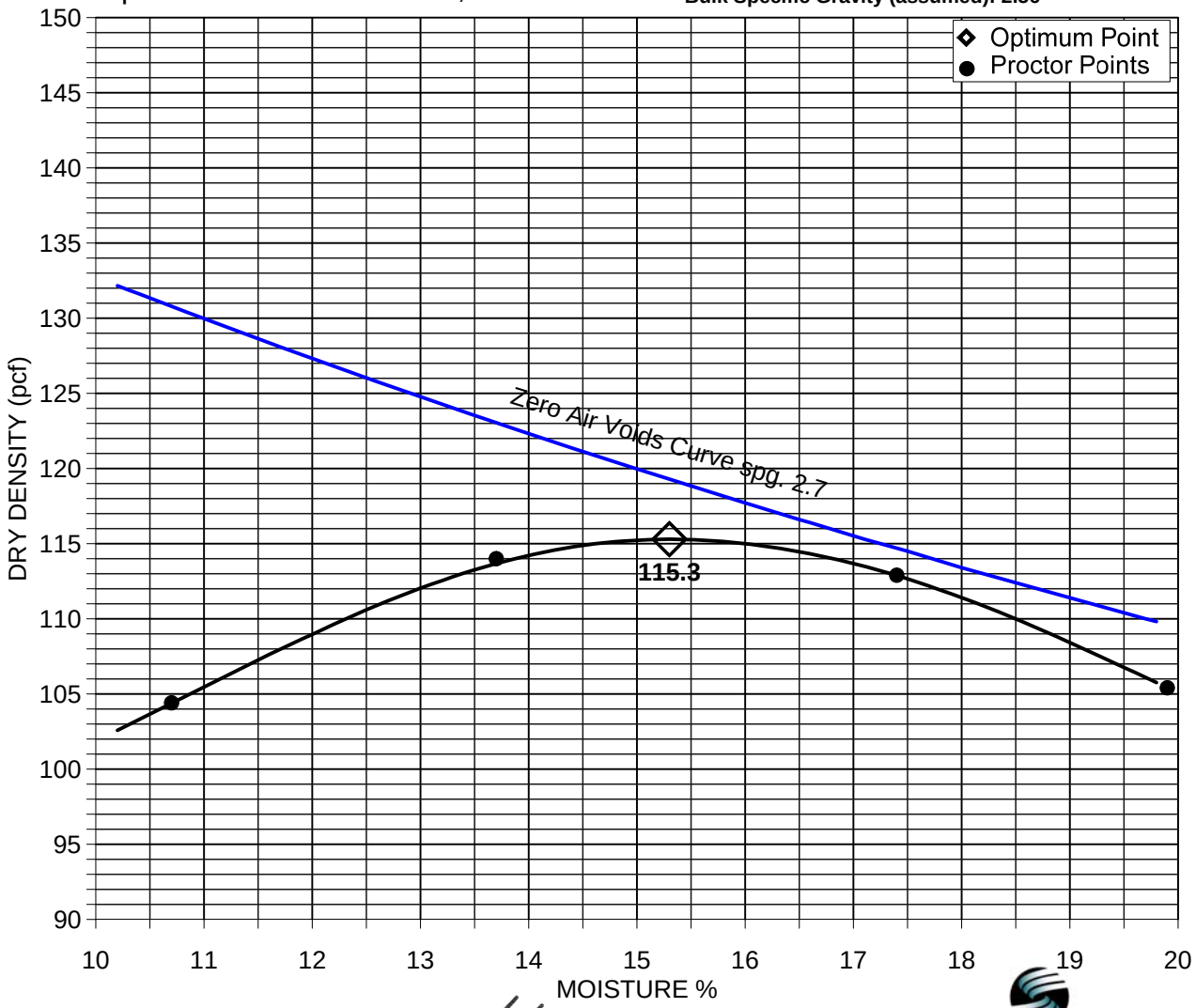
Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600510
Sample Source: TP-8 3.5-13'
Sample Classification: Clayey Gravel with Sand (GC)
Date Sampled: 11/21/2016
Sampled By: R. Benedetti - STRATA
Date Tested: 12/09/2016
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	93	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 115.3
Optimum Moisture Content, %: 15.3

Corrected Dry Density, pcf: 117.3
Corrected Moisture Content, %: 14.3
Coarse Aggregate Correction, %: 7.0
Bulk Specific Gravity (assumed): 2.56



Reviewed By: Michael Hitchcock

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MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D689
Method C

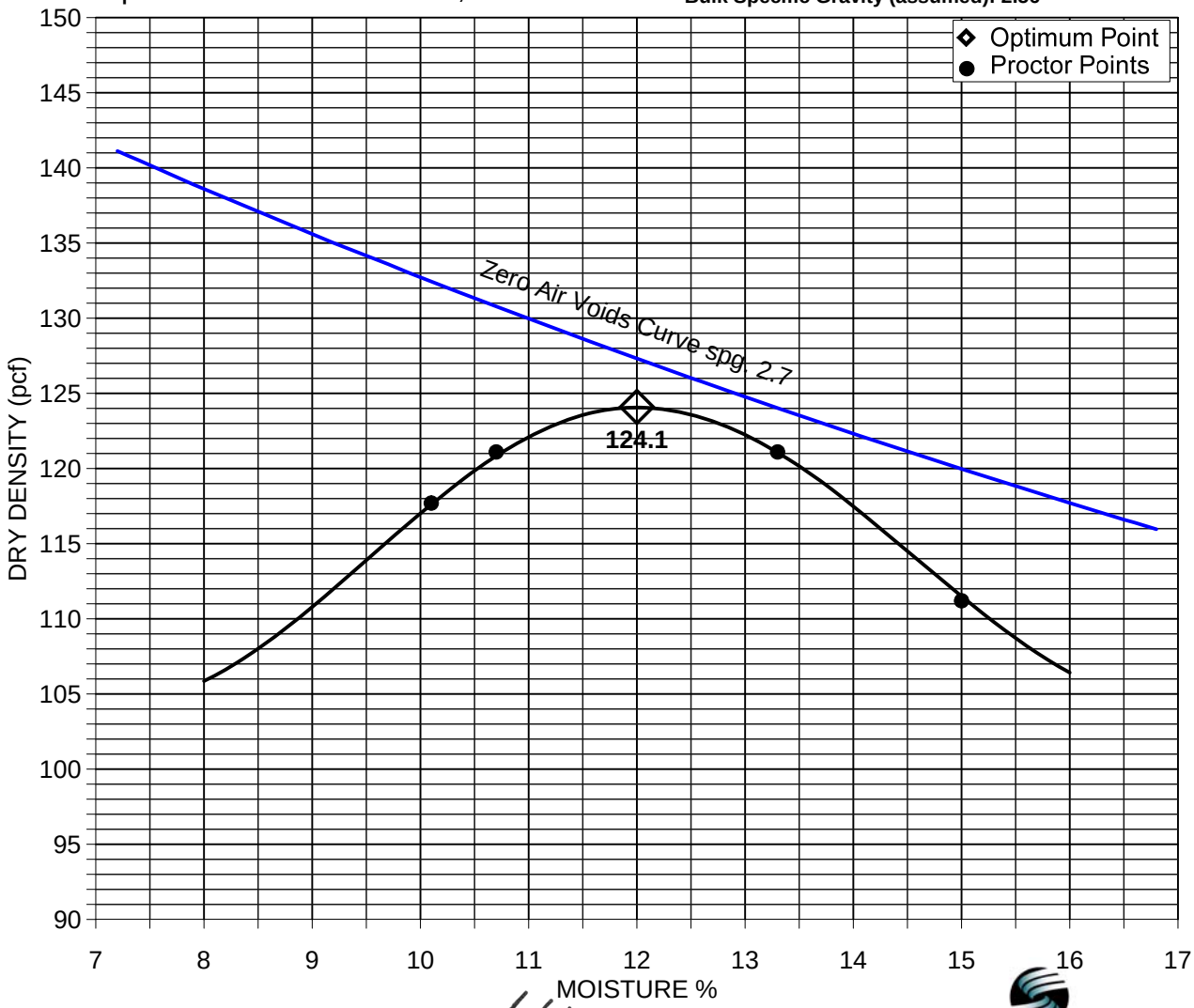
Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600511
Sample Source: TP-9 7-14'
Sample Classification: Poorly graded Gravel with Clay and Sand (GP-GC)
Date Sampled: 11/09/2016
Sampled By: R. Benedetti - STRATA
Date Tested: 12/12/2016
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	86	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 124.1
Optimum Moisture Content, %: 12.0

Corrected Dry Density, pcf: 128.0
Corrected Moisture Content, %: 10.3
Coarse Aggregate Correction, %: 14.0
Bulk Specific Gravity (assumed): 2.56



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Integrity from the Ground Up

MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

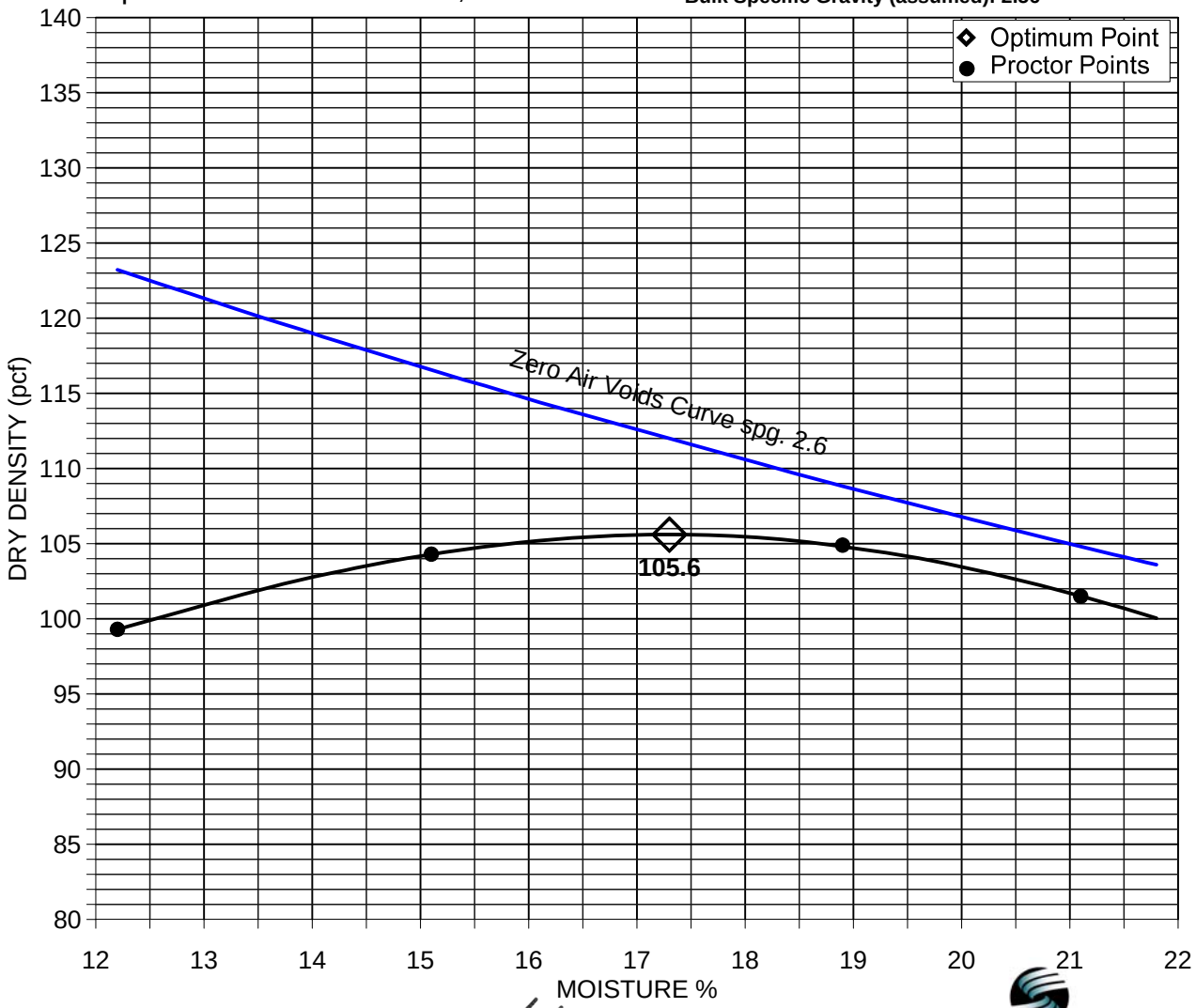
Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600506
Sample Source: TP-12 2-4'
Sample Classification: Clayey Gravel with Sand (GC)
Date Sampled: 11/21/2016
Sampled By: R. Bendetti - STRATA
Date Tested: 12/09/2016
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	81	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 105.6
Optimum Moisture Content, %: 17.3

Corrected Dry Density, pcf: 112.8
Corrected Moisture Content, %: 14.0
Coarse Aggregate Correction, %: 19.0
Bulk Specific Gravity (assumed): 2.56



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Integrity from the Ground Up

MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D689
Method C

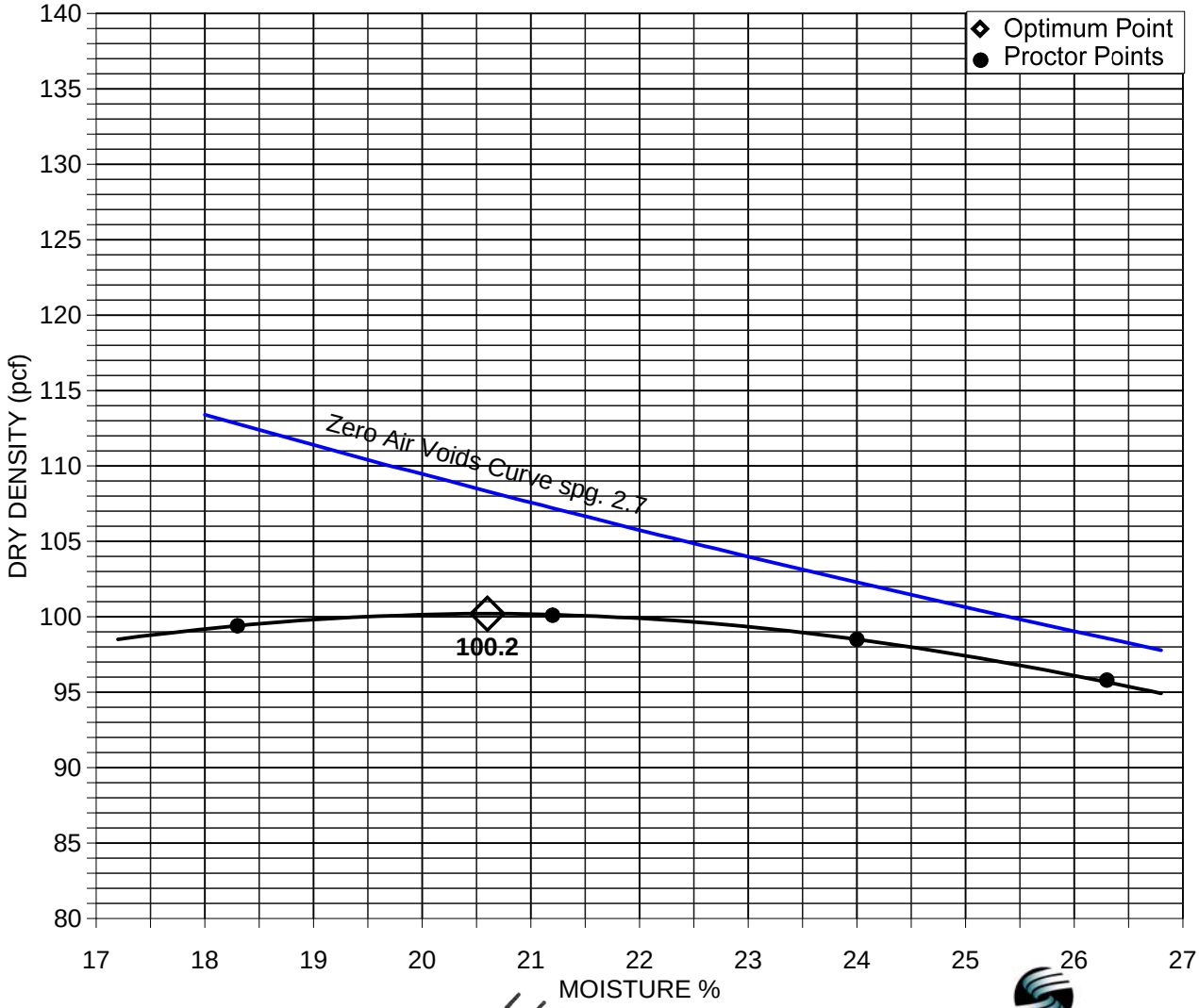
Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600512
Sample Source: TP-14 3-7'
Sample Classification: Clayey Gravel with Sand (GC)
Date Sampled: 11/09/2016
Sampled By: R. Benedetti - STRATA
Date Tested: 12/12/2016
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	91	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 100.2
Optimum Moisture Content, %: 20.6

Corrected Dry Density, pcf: 103.3
Corrected Moisture Content, %: 18.6
Coarse Aggregate Correction, %: 9.0
Bulk Specific Gravity (assumed): 2.56



Reviewed By: Michael Hitchcock

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Integrity from the Ground Up

MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

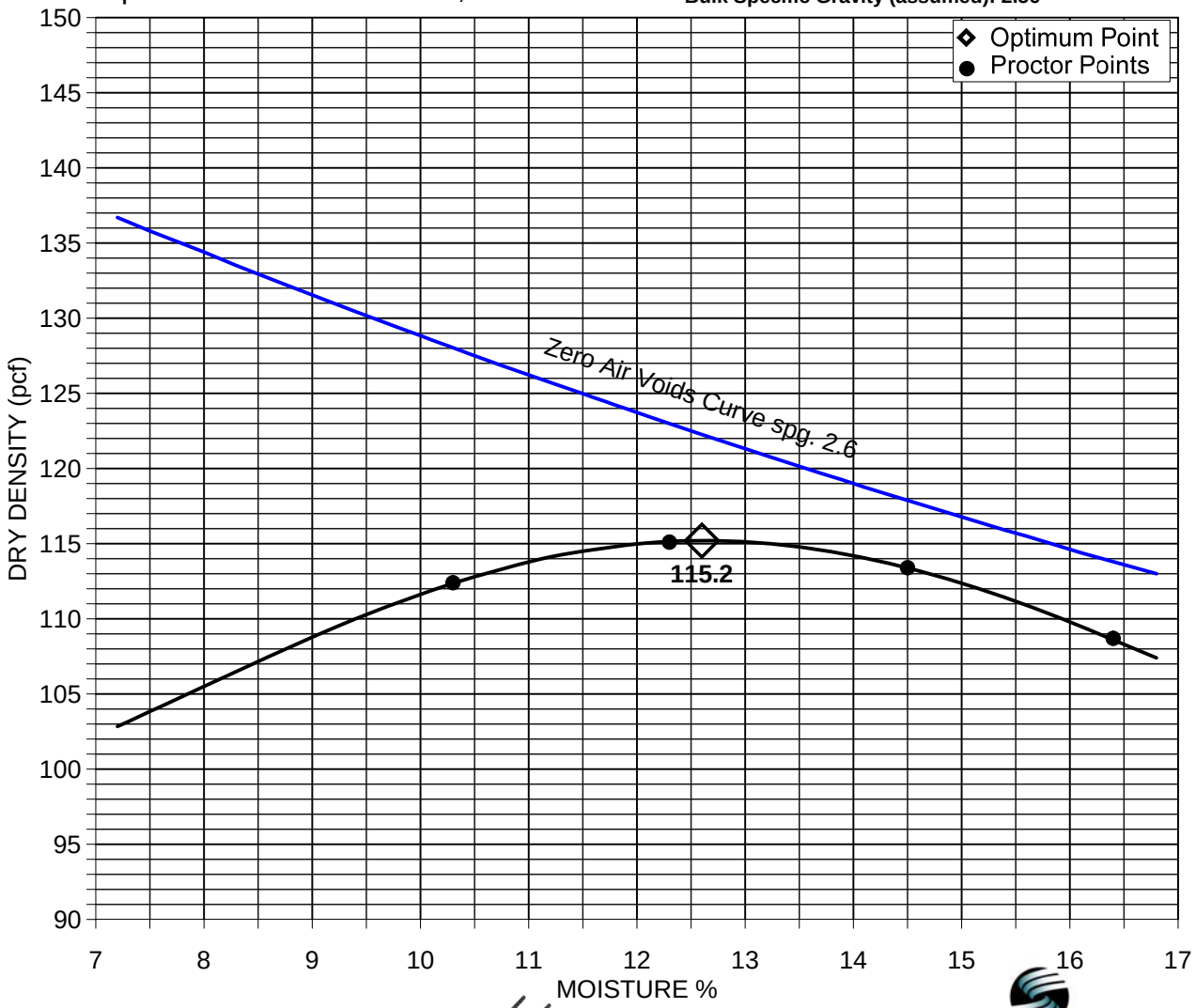
Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600507
Sample Source: TP-15 & 16 2-13'
Sample Classification: Clayey Sand with Gravel (SC)
Date Sampled: 11/21/2016
Sampled By: R. Benedetti - STRATA
Date Tested: 12/12/2016
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	93	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 115.2
Optimum Moisture Content, %: 12.6

Corrected Dry Density, pcf: 117.3
Corrected Moisture Content, %: 11.8
Coarse Aggregate Correction, %: 7.0
Bulk Specific Gravity (assumed): 2.56



Reviewed By: Michael Hitchcock

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Integrity from the Ground Up

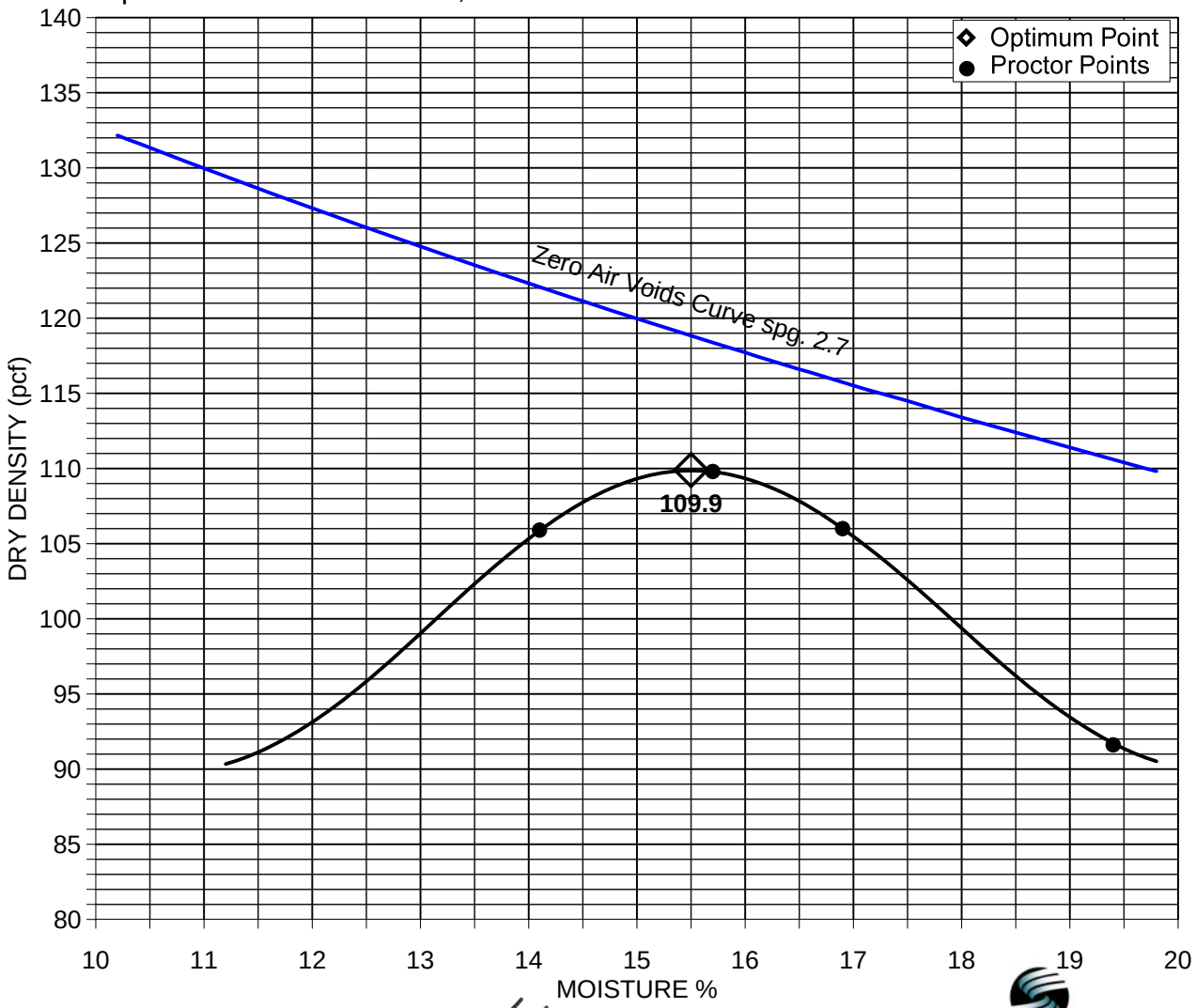
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM DD689
Method C

Project: Ballard Laboratory Testing
Client Name: P4 Production, LLC
Project ID.: PO16053D
Sample No.: PO1600508
Sample Source: TP-20 1-4'
Sample Classification: Clayey Sand with Gravel (SC)
Date Sampled: 11/21/2016
Sampled By: R. Benedetti - STRATA
Date Tested: 12/09/2016
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Manual

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch		
3/4 inch	100	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 109.9
Optimum Moisture Content, %: 15.5



Reviewed By: Michael Hitchcock

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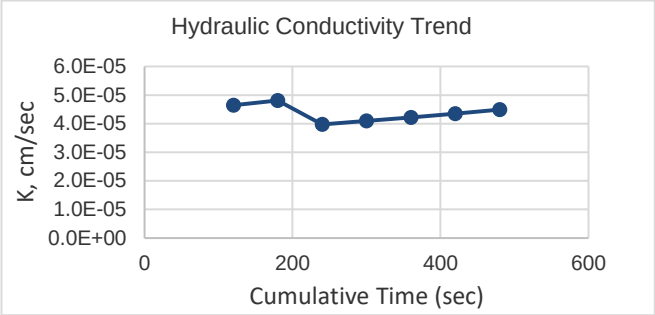
FLEXWALL PERMEABILITY TEST

ASTM D5084 (Method C)

(permeation of sample)



Project No.: PO15053D
Sample ID: PO1600497/498/499
Tested by: JF
Date Tested: 2/3/2017

Client: P4 Production, LLC
Project: Ballard Laboratory Testing
Sample Source: SB-06GT (1.5'-10'), SB-07GT (0'-4'), SB-12GT (0'-27')
Sample Description: Sandy Lean Clay and Clayey Sandy with Gravel
Initial Dry Density: 101.1 (Compacted to 89% of ASTM D698)
Initial Moisture Content: 16%
Final Moisture Content: 33%

X Remolded
Undisturbed

Hydraulic Gradient 0.9
System Constant, C 0.440 (cm^2)

Chamber 55 (psi)
Upper 51.4 (psi)
Lower 51.5 (psi)

$a_{influent\ burette}$ 0.88 cm^2
Final Length, L_f 7.785 cm
Final Area, A_f 41.97 cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} ($x10^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
3/3/2017	0	19.8	1.010	2.2	19.7							
3/3/2017	60	19.8	1.010	2.7	19.2	0.5	0.5	1.0	14.9			
3/3/2017	120	19.8	1.010	3.2	18.7	0.5	0.5	1.0	14.4	2.5E-04	4.6E-05	4.6E-05
3/3/2017	180	19.8	1.010	3.7	18.2	0.5	0.5	1.0	13.9	2.6E-04	4.8E-05	4.8E-05
3/3/2017	240	19.8	1.010	4.1	17.8	0.4	0.4	1.0	13.5	2.1E-04	4.0E-05	4.0E-05
3/3/2017	300	19.8	1.010	4.5	17.4	0.4	0.4	1.0	13.1	2.2E-04	4.1E-05	4.1E-05
3/3/2017	360	19.8	1.010	4.9	17.0	0.4	0.4	1.0	12.7	2.3E-04	4.2E-05	4.2E-05
3/3/2017	420	19.8	1.010	5.3	16.6	0.4	0.4	1.0	12.3	2.3E-04	4.4E-05	4.4E-05
3/3/2017	480	19.8	1.010	5.7	16.2	0.4	0.4	1.0	11.9	2.4E-04	4.5E-05	4.5E-05

Permeant liquid: standard water

kavg = 4.4E-05 cm/s

Reviewed by:

\\POCS1\Main\CLIENTS\M\Monsanto - POs Required\PO16053D - Ballard Laboratory Testing\CMT\LABORATORY\Gillette Testing\PO1600497, PO1600498, PO1600499 Combined Permeability.xlsPO1600497, PO1600498, PO1600499 Combined Permeability.xls

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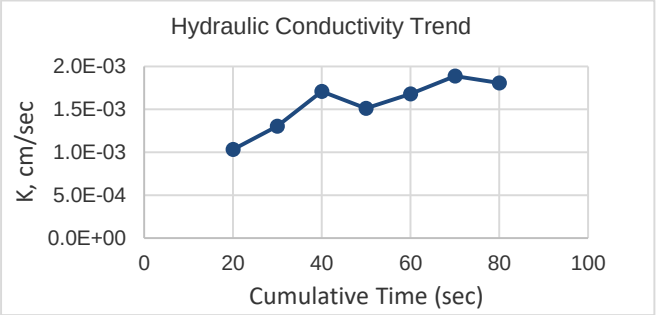
FLEXWALL PERMEABILITY TEST

ASTM D5084 (Method C)

(permeation of sample)



Project No.: PO15053D
Sample ID: PO1600500/503/504
Tested by: JF
Date Tested: 3/3/2017

Client: P4 Production, LLC
Project: Ballard Laboratory Testing
Sample Source: SB-13AL (0'-25'), SB-15AL (0'-50')
Sample Description: Brown Silty/Clayey Sand with Gravel
Initial Dry Density: 101.1 (Compacted to 89% of ASTM D698)
Initial Moisture Content: 16%
Final Moisture Content: 33%

X Remolded
Undisturbed

Hydraulic Gradient 0.0
System Constant, C 0.440 (cm^2)

Chamber 55 (psi)
Upper 51.5 (psi)
Lower 51.5 (psi)

$a_{influent\ burette}$ 0.88 cm^2
Final Length, L_f 7.148 cm
Final Area, A_f 41.6 cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} (x10$^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
3/6/2017	0	20.1	1.002	21.2	0.4							
3/6/2017	10	20.1	1.002	19.9	1.7	-1.3	-1.3	1.0	-9.3			
3/6/2017	20	20.1	1.002	18.7	2.9	-1.2	-1.2	1.0	-8.1	6.0E-03	1.0E-03	1.0E-03
3/6/2017	30	20.1	1.002	17.4	4.2	-1.3	-1.3	1.0	-6.9	7.6E-03	1.3E-03	1.3E-03
3/6/2017	40	20.1	1.002	16.0	5.6	-1.4	-1.4	1.0	-5.5	9.9E-03	1.7E-03	1.7E-03
3/6/2017	50	20.1	1.002	15.0	6.6	-1.0	-1.0	1.0	-4.5	8.8E-03	1.5E-03	1.5E-03
3/6/2017	60	20.1	1.002	14.1	7.5	-0.9	-0.9	1.0	-3.6	9.8E-03	1.7E-03	1.7E-03
3/6/2017	70	20.1	1.002	13.3	8.3	-0.8	-0.8	1.0	-2.8	1.1E-02	1.9E-03	1.9E-03
3/6/2017	80	20.1	1.002	12.7	8.9	-0.6	-0.6	1.0	-2.2	1.0E-02	1.8E-03	1.8E-03

Permeant liquid: standard water

kavg = 1.8E-03 cm/s

Reviewed by:

\\POCS1\Main\CLIENTS\M\Monsanto - POs Required\PO16053D - Ballard Laboratory Testing\CMT\LABORATORY\Gillette Testing\PO1600500, PO1600503, PO1600504 Combined Permeability.xlsPO1600500, PO1600503, PO1600504 Combined Permeability.xls

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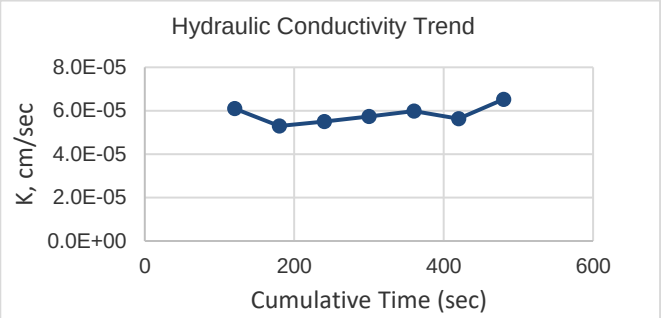
FLEXWALL PERMEABILITY TEST
ASTM D5084 (Method C)
(permeation of sample)



Project No.:	PO15053D	Client:	P4 Productions, LLC	X	Remolded
Sample ID:	PO1600501/502	Project:	Ballard Laboratory Testing		Undisturbed
Tested by:	JF	Sample Source:	SB-14AL (0'-35')		
Date Tested:	3/3/2017	Sample Description:	Brown Silty Sand and Clayey Sand		
		Initial Dry Density:	102.8 (Compacted to 89% of ASTM D698)		
		Initial Moisture Content:	16%		
		Final Moisture Content:	33%		

		Chamber	55 (psi)	$a_{\text{influent burette}}$	0.88 cm^2
Hydraulic Gradient	0.9	Upper	51.5 (psi)	Final Length, L_f	7.803 cm
System Constant, C	0.440 (cm^2)	Lower	51.4 (psi)	Final Area, A_f	41.53 cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} ($x10^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
3/3/2017	0	20.1	1.002	17.9	3.8							
3/3/2017	60	20.1	1.002	17.3	4.4	0.6	0.6	1.0	-13.7			
3/3/2017	120	20.1	1.002	16.7	5.0	0.6	0.6	1.0	-13.2	3.2E-04	6.1E-05	6.1E-05
3/3/2017	180	20.1	1.002	16.2	5.5	0.5	0.5	1.0	-12.7	2.8E-04	5.3E-05	5.3E-05
3/3/2017	240	20.1	1.002	15.7	6.0	0.5	0.5	1.0	-12.2	2.9E-04	5.5E-05	5.5E-05
3/3/2017	300	20.1	1.002	15.2	6.5	0.5	0.5	1.0	-11.7	3.0E-04	5.7E-05	5.7E-05
3/3/2017	360	20.1	1.002	14.7	7.0	0.5	0.5	1.0	-11.2	3.2E-04	6.0E-05	6.0E-05
3/3/2017	420	20.1	1.002	14.3	7.4	0.4	0.4	1.0	-10.7	3.0E-04	5.6E-05	5.6E-05
3/3/2017	480	20.1	1.002	13.8	7.9	0.5	0.5	1.0	-10.2	3.5E-04	6.5E-05	6.5E-05

Permeant liquid: standard water

kavg = 6.0E-05 cm/s

Reviewed by:

\\POCS1\Main\CLIENTS\M\Monsanto - POs Required\PO16053D - Ballard Laboratory Testing\CMT\LABORATORY\Gillette Testing\PO1600501, 502 Combined Permeability.xlsPO1600501, 502 Combined Permeability.xls

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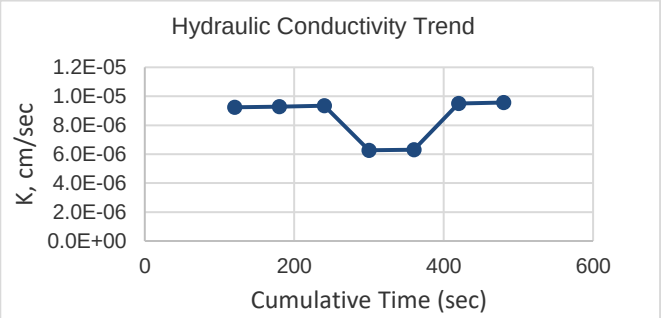
FLEXWALL PERMEABILITY TEST

ASTM D5084 (Method C)

(permeation of sample)



Project No.:	PO15053D	Client:	P4 Production, LLC	X	Remolded
Sample ID:	PO1600505	Project:	Ballard Laboratory Testing		Undisturbed
Tested by:	JF	Sample Source:	TP-6, 7, & 9 (2'-5')		
Date Tested:	2/3/2017	Sample Description:	Brown Clayey Sand with Gravel		
		Initial Dry Density:	98.7 (Compacted to 91% of ASTM D698)		
		Initial Moisture Content:	15%		
		Final Moisture Content:	29%		

		Chamber	55	(psi)	$a_{\text{influent burette}}$	0.88	cm^2
Hydraulic Gradient	-4.5	Upper	52.5	(psi)	Final Length, L_f	7.8	cm
System Constant, C	0.440 (cm^2)	Lower	52	(psi)	Final Area, A_f	40.7	cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} (x10$^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
	0	20.3	0.997	20.6	0.3							
	60	20.3	0.997	20.3	0.6	-0.3	-0.3	1.0	-45.3			
	120	20.3	0.997	20.0	0.9	-0.3	-0.3	1.0	-45.0	4.8E-05	9.2E-06	9.2E-06
	180	20.3	0.997	19.7	1.2	-0.3	-0.3	1.0	-44.7	4.9E-05	9.3E-06	9.3E-06
	240	20.3	0.997	19.4	1.5	-0.3	-0.3	1.0	-44.4	4.9E-05	9.4E-06	9.4E-06
	300	20.3	0.997	19.2	1.7	-0.2	-0.2	1.0	-44.2	3.3E-05	6.3E-06	6.3E-06
	360	20.3	0.997	19.0	1.9	-0.2	-0.2	1.0	-44.0	3.3E-05	6.3E-06	6.3E-06
	420	20.3	0.997	18.7	2.2	-0.3	-0.3	1.0	-43.7	5.0E-05	9.5E-06	9.5E-06
	480	20.3	0.997	18.4	2.5	-0.3	-0.3	1.0	-43.4	5.0E-05	9.6E-06	9.6E-06

Permeant liquid: standard water

kavg = 8.5E-06 cm/s

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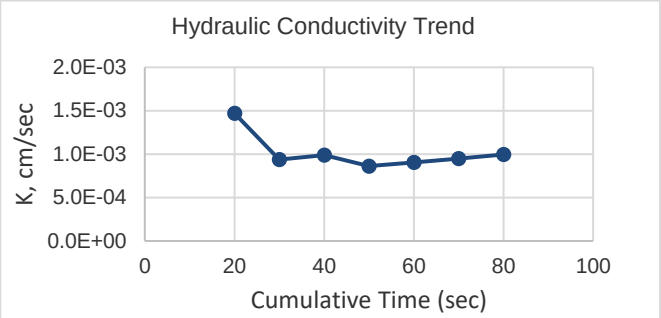
FLEXWALL PERMEABILITY TEST

ASTM D5084 (Method C)

(permeation of sample)



Project No.:	PO15053D	Client:	P4 Production, LLC	X	Remolded
Sample ID:	PO1600510	Project:	Ballard Laboratory Testing		Undisturbed
Tested by:	JF	Sample Source:	TP-8 (3.5'-13')		
Date Tested:	1/27/2017	Sample Description:	Dark Brown Clayey Gravel with Sand		
		Initial Dry Density:	105.1 (Compacted to 91% of ASTM D698)		
		Initial Moisture Content:	15%		
		Final Moisture Content:	29%		

			Chamber	60	(psi)	$a_{\text{influent burette}}$	0.88 cm^2
Hydraulic Gradient	-0.6		Upper	57.5	(psi)	Final Length, L_f	12.46 cm
System Constant, C	0.440	(cm^2)	Lower	57.4	(psi)	Final Area, A_f	29.04 cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} ($x10^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
	0	19.1	1.027	18.0	3.5							
	10	19.1	1.027	17.0	4.5	-1.0	-1.0	1.0	-13.5			
	20	19.1	1.027	16.0	5.5	-1.0	-1.0	1.0	-12.6	3.3E-03	1.5E-03	1.5E-03
	30	19.1	1.027	15.4	6.1	-0.6	-0.6	1.0	-12.0	2.1E-03	9.4E-04	9.4E-04
	40	19.1	1.027	14.8	6.7	-0.6	-0.6	1.0	-11.4	2.2E-03	9.9E-04	9.9E-04
	50	19.1	1.027	14.3	7.2	-0.5	-0.5	1.0	-10.9	2.0E-03	8.6E-04	8.6E-04
	60	19.1	1.027	13.8	7.7	-0.5	-0.5	1.0	-10.4	2.0E-03	9.0E-04	9.0E-04
	70	19.1	1.027	13.3	8.2	-0.5	-0.5	1.0	-9.9	2.2E-03	9.5E-04	9.5E-04
	80	19.1	1.027	12.8	8.7	-0.5	-0.5	1.0	-9.4	2.3E-03	1.0E-03	1.0E-03

Permeant liquid: standard water

kavg = 9.5E-04 cm/s

Reviewed by:

\\POCS1\Main\CLIENTS\M\Monsanto - POs Required\PO16053D - Ballard Laboratory Testing\CMT\LABORATORY\Gillette Testing\PO1600510 Permeability.xlsPO1600510 Permeability.xls

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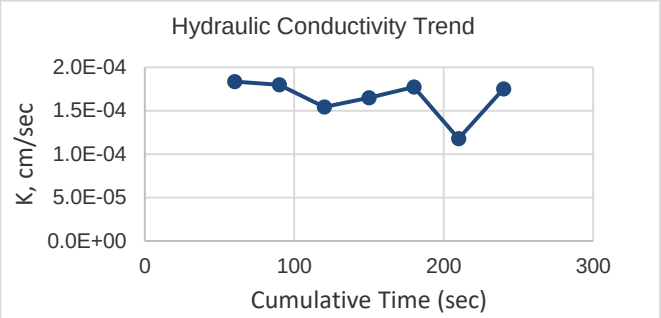
FLEXWALL PERMEABILITY TEST
ASTM D5084 (Method C)
(permeation of sample)



Project No.:	PO15053D	Client:	P4 Production, LLC	X	Remolded
Sample ID:	PO1600511	Project:	Ballard Laboratory Testing		Undisturbed
Tested by:	JF	Sample Source:	TP-9 (7'-14')		
Date Tested:	2/16/2017	Sample Description:	Brown Poorly Graded Gravel with Clay and Sand		
		Initial Dry Density:	112.9 (Compacted to 91% of ASTM D698)		
		Initial Moisture Content:	13%		
		Final Moisture Content:	Pending%		

			Chamber	55	(psi)	a influent burette	0.88 cm^2
Hydraulic Gradient	-1.1		Upper	51.5	(psi)	Final Length, L_f	6.63 cm
System Constant, C	0.440	(cm^2)	Lower	51.4	(psi)	Final Area, A_f	39.99 cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} ($x10^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
2/16/2017	0	20.7	0.987	19.8	2.4							
2/16/2017	30	20.7	0.987	18.6	3.6	-1.2	-1.2	1.0	-14.8			
2/16/2017	60	20.7	0.987	17.5	4.7	-1.1	-1.1	1.0	-13.7	1.1E-03	1.8E-04	1.8E-04
2/16/2017	90	20.7	0.987	16.5	5.7	-1.0	-1.0	1.0	-12.7	1.1E-03	1.8E-04	1.8E-04
2/16/2017	120	20.7	0.987	15.7	6.5	-0.8	-0.8	1.0	-11.9	9.4E-04	1.5E-04	1.5E-04
2/16/2017	150	20.7	0.987	14.9	7.3	-0.8	-0.8	1.0	-11.1	1.0E-03	1.7E-04	1.7E-04
2/16/2017	180	20.7	0.987	14.1	8.1	-0.8	-0.8	1.0	-10.3	1.1E-03	1.8E-04	1.8E-04
2/16/2017	210	20.7	0.987	13.6	8.6	-0.5	-0.5	1.0	-9.8	7.2E-04	1.2E-04	1.2E-04
2/16/2017	240	20.7	0.987	12.9	9.3	-0.7	-0.7	1.0	-9.2	1.1E-03	1.8E-04	1.8E-04

Permeant liquid: standard water

kavg = 1.6E-04 cm/s

Reviewed by:

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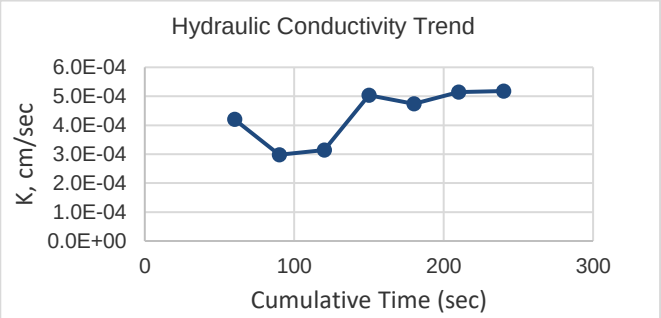
FLEXWALL PERMEABILITY TEST

ASTM D5084 (Method C)

(permeation of sample)



Project No.:	PO15053D	Client:	P4 Production, LLC	X	Remolded
Sample ID:	PO1600506	Project:	Ballard Laboratory Testing		Undisturbed
Tested by:	JF	Sample Source:	TP-12 (2'-4')		
Date Tested:	1/27/2017	Sample Description:	Brown Clayey Gravel with Sand		
		Initial Dry Density:	94 (Compacted to 89% of ASTM D698)		
		Initial Moisture Content:	17%		
		Final Moisture Content:	35%		

		Chamber	60 (psi)	$a_{\text{influent burette}}$	0.88 cm^2
Hydraulic Gradient	-1.2	Upper	57.5 (psi)	Final Length, L_f	11.51 cm
System Constant, C	0.440 (cm^2)	Lower	57.3 (psi)	Final Area, A_f	29.04 cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} (x10$^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
	0	19.1	1.027	19.5	1.5							
	30	19.1	1.027	18.0	3.0	-1.5	-1.5	1.0	-21.8			
	60	19.1	1.027	16.5	4.5	-1.5	-1.5	1.0	-20.3	1.0E-03	4.2E-04	4.2E-04
	90	19.1	1.027	15.5	5.5	-1.0	-1.0	1.0	-19.3	7.3E-04	3.0E-04	3.0E-04
	120	19.1	1.027	14.5	6.5	-1.0	-1.0	1.0	-18.3	7.7E-04	3.1E-04	3.1E-04
	150	19.1	1.027	13.0	8.0	-1.5	-1.5	1.0	-16.9	1.2E-03	5.0E-04	5.0E-04
	180	19.1	1.027	11.7	9.3	-1.3	-1.3	1.0	-15.6	1.2E-03	4.7E-04	4.7E-04
	210	19.1	1.027	10.4	10.6	-1.3	-1.3	1.0	-14.3	1.3E-03	5.1E-04	5.1E-04
	240	19.1	1.027	9.2	11.8	-1.2	-1.2	1.0	-13.1	1.3E-03	5.2E-04	5.2E-04

Permeant liquid: standard water

kavg = 5.0E-04 cm/s

Reviewed by:

\\POCS1\Main\CLIENTS\M\Monsanto - POs Required\PO16053D - Ballard Laboratory Testing\CMT\LABORATORY\Gillette Testing\PO1600506 Permeability.xlsPO1600506 Permeability.xls

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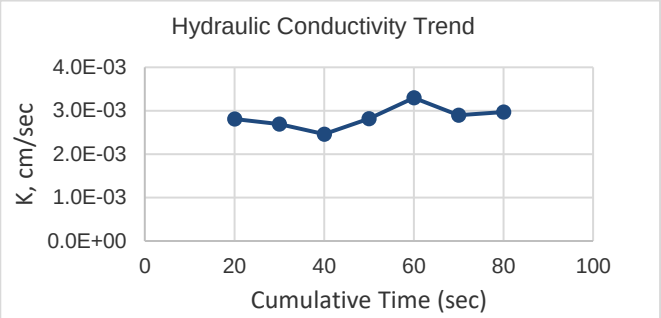
FLEXWALL PERMEABILITY TEST

ASTM D5084 (Method C)

(permeation of sample)



Project No.:	PO15053D	Client:	P4 Production, LLC	X	Remolded
Sample ID:	PO1600512	Project:	Ballard Laboratory Testing		Undisturbed
Tested by:	JF	Sample Source:	TP-14 (3'-7')		
Date Tested:	2/3/2017	Sample Description:	Brown Clayey Gravel with Sand		
		Initial Dry Density:	98.7 (Compacted to 90.5% of ASTM D698)		
		Initial Moisture Content:	15%		
		Final Moisture Content:	29%		

		Chamber	50 (psi)	$a_{\text{influent burette}}$	0.88 cm^2
Hydraulic Gradient	0.0	Upper	47.5 (psi)	Final Length, L_f	12.9 cm
System Constant, C	0.440 (cm^2)	Lower	47.5 (psi)	Final Area, A_f	28.77 cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} ($x10^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
	0	20.7	0.987	15.3	5.8							
	10	20.7	0.987	14.7	6.4	-0.6	-0.6	1.0	-4.4			
	20	20.7	0.987	14.1	7.0	-0.6	-0.6	1.0	-3.8	6.3E-03	2.8E-03	2.8E-03
	30	20.7	0.987	13.6	7.5	-0.5	-0.5	1.0	-3.3	6.1E-03	2.7E-03	2.7E-03
	40	20.7	0.987	13.2	7.9	-0.4	-0.4	1.0	-2.9	5.6E-03	2.5E-03	2.5E-03
	50	20.7	0.987	12.8	8.3	-0.4	-0.4	1.0	-2.5	6.4E-03	2.8E-03	2.8E-03
	60	20.7	0.987	12.4	8.7	-0.4	-0.4	1.0	-2.1	7.4E-03	3.3E-03	3.3E-03
	70	20.7	0.987	12.1	9.0	-0.3	-0.3	1.0	-1.9	6.5E-03	2.9E-03	2.9E-03
	80	20.7	0.987	11.9	9.3	-0.3	-0.3	0.9	-1.6	6.7E-03	3.0E-03	3.0E-03

Permeant liquid: standard water

kavg = 3.1E-03 cm/s

Reviewed by:

\\POCS1\Main\CLIENTS\M\Monsanto - POs Required\PO16053D - Ballard Laboratory Testing\CMT\LABORATORY\Gillette Testing\PO1600512 Permeability.xlsPO1600512 Permeability.xls

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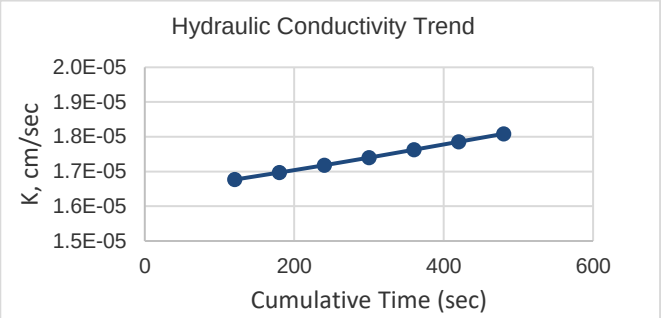
FLEXWALL PERMEABILITY TEST

ASTM D5084 (Method C)

(permeation of sample)



Project No.:	PO15053D	Client:	P4 Production, LLC	X	Remolded
Sample ID:	PO1600507	Project:	Ballard Laboratory Testing		Undisturbed
Tested by:	JF	Sample Source:	TP-15&16 (2'-13')		
Date Tested:	2/16/2017	Sample Description:	Brown Clayey Sand with Gravel		
		Initial Dry Density:	102.8 (Compacted to 89% of ASTM D698)		
		Initial Moisture Content:	12%		
		Final Moisture Content:	Pending		

			Chamber	55	(psi)	a influent burette	0.88 cm^2
Hydraulic Gradient	-0.9		Upper	51.6	(psi)	Final Length, L_f	7.775 cm
System Constant, C	0.440	(cm^2)	Lower	51.5	(psi)	Final Area, A_f	40.99 cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} ($x10^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
2/16/2017	0	20.5	0.992	19.8	0.5							
2/16/2017	60	20.5	0.992	19.3	1.0	-0.5	-0.5	1.0	-16.4			
2/16/2017	120	20.5	0.992	19.1	1.2	-0.2	-0.2	1.0	-16.2	8.9E-05	1.7E-05	1.7E-05
2/16/2017	180	20.5	0.992	18.9	1.4	-0.2	-0.2	1.0	-16.0	9.0E-05	1.7E-05	1.7E-05
2/16/2017	240	20.5	0.992	18.7	1.6	-0.2	-0.2	1.0	-15.8	9.1E-05	1.7E-05	1.7E-05
2/16/2017	300	20.5	0.992	18.5	1.8	-0.2	-0.2	1.0	-15.6	9.2E-05	1.7E-05	1.7E-05
2/16/2017	360	20.5	0.992	18.3	2.0	-0.2	-0.2	1.0	-15.4	9.4E-05	1.8E-05	1.8E-05
2/16/2017	420	20.5	0.992	18.1	2.2	-0.2	-0.2	1.0	-15.2	9.5E-05	1.8E-05	1.8E-05
2/16/2017	480	20.5	0.992	17.9	2.4	-0.2	-0.2	1.0	-15.0	9.6E-05	1.8E-05	1.8E-05

Permeant liquid: standard water

kavg = 1.8E-05 cm/s

Reviewed by:

\\POCS1\Main\CLIENTS\M\Monsanto - POs Required\PO16053D - Ballard Laboratory Testing\CMT\LABORATORY\Gillette Testing\PO1600507 Permeability.xlsPO1600507 Permeability.xls

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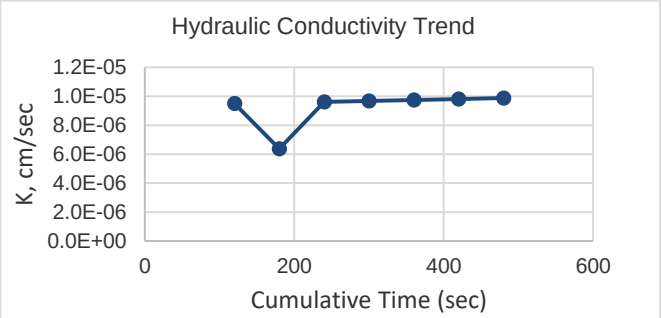
FLEXWALL PERMEABILITY TEST

ASTM D5084 (Method C)

(permeation of sample)



Project No.:	PO15053D	Client:	P4 Production, LLC	X	Remolded
Sample ID:	PO1600508	Project:	Ballard Laboratory Testing		Undisturbed
Tested by:	JF	Sample Source:	TP-20 (1'-4')		
Date Tested:	2/3/2017	Sample Description:	Brown Clayey Sand with Gravel		
		Initial Dry Density:	99.5 (Compacted to 90% of ASTM D698)		
		Initial Moisture Content:	15%		
		Final Moisture Content:	29%		

		Chamber	55	(psi)	$a_{\text{influent burette}}$	0.88	cm^2
Hydraulic Gradient	-4.5	Upper	52.5	(psi)	Final Length, L_f	7.8	cm
System Constant, C	0.440 (cm^2)	Lower	52	(psi)	Final Area, A_f	40.7	cm^2

Date	Time (s)	Temperature		Burette Readings		Incremental Flow			Head Difference[1] h (t)	Preliminary[2] kA/L (cm^2/sec)	Final[3] k_{20} ($x10^-$) (cm/sec)	**ASTM D5084 Method C k_{20} (cm/sec)**
		°C	R_T	Lower V_U (t) (cc)	Upper V_L (t) (cc)	Inflow (lower) (cc)	Outflow (upper) (cc)	Ratio In/Out				
	0	20.5	0.992	20.3	3.1							
	60	20.5	0.992	20.0	3.4	-0.3	-0.3	1.0	-43.8			
	120	20.5	0.992	19.7	3.7	-0.3	-0.3	1.0	-43.5	5.0E-05	9.5E-06	9.5E-06
	180	20.5	0.992	19.5	3.9	-0.2	-0.2	1.0	-43.3	3.3E-05	6.4E-06	6.4E-06
	240	20.5	0.992	19.2	4.2	-0.3	-0.3	1.0	-43.0	5.1E-05	9.6E-06	9.6E-06
	300	20.5	0.992	18.9	4.5	-0.3	-0.3	1.0	-42.7	5.1E-05	9.7E-06	9.7E-06
	360	20.5	0.992	18.6	4.8	-0.3	-0.3	1.0	-42.4	5.1E-05	9.7E-06	9.7E-06
	420	20.5	0.992	18.3	5.1	-0.3	-0.3	1.0	-42.1	5.2E-05	9.8E-06	9.8E-06
	480	20.5	0.992	18.0	5.4	-0.3	-0.3	1.0	-41.8	5.2E-05	9.9E-06	9.9E-06

Permeant liquid: standard water **kavg =** 9.8E-06 cm/s

Reviewed by:

Soil Water Characteristic Curve Results
ASTM D 6836
STRATA Ballard Laboratory Testing
AS17.1019.00

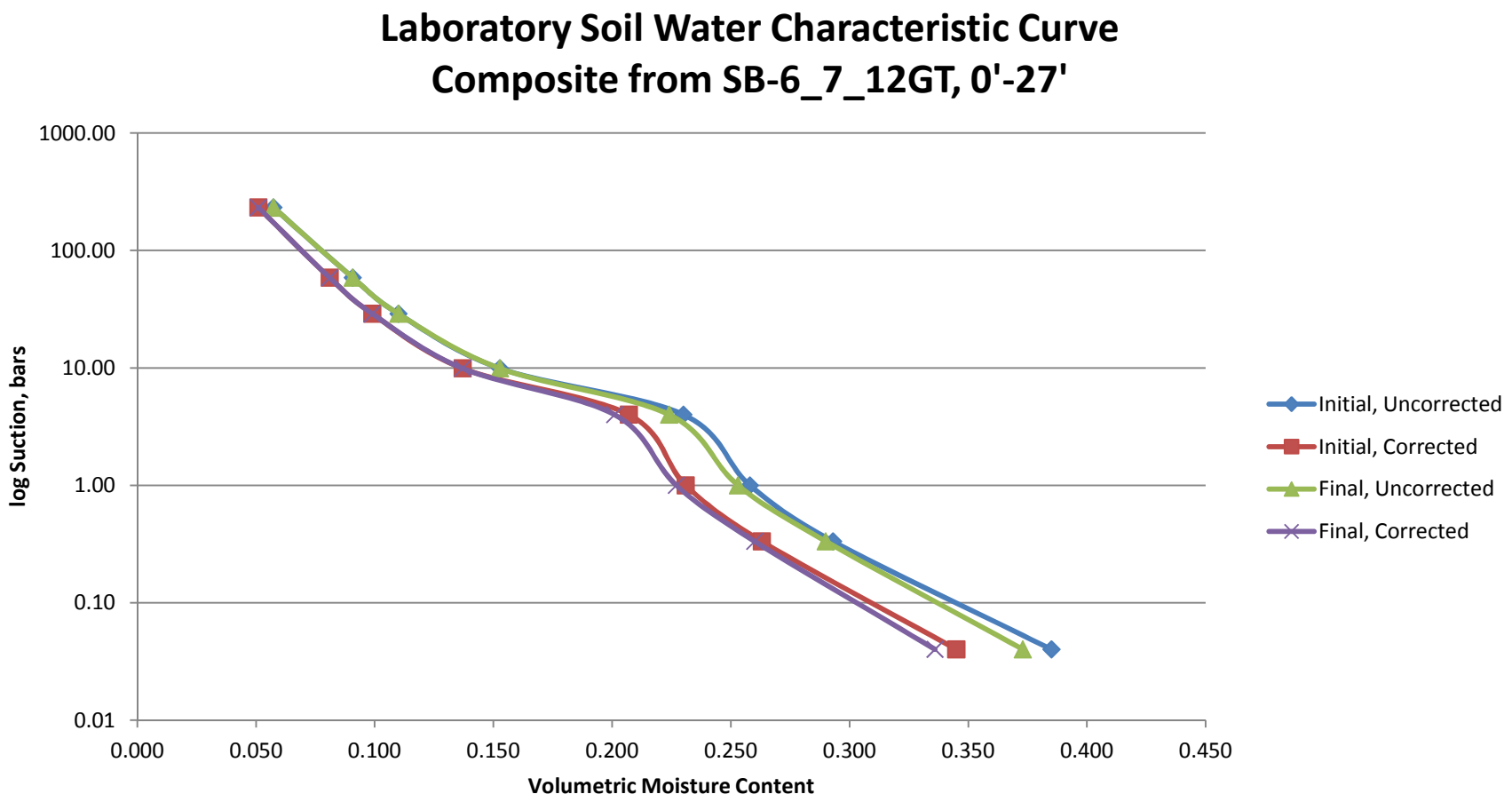
Geo-Logic ASSOCIATES

Sample	Suction (Bars)	Gravimetric Moisture Content, %	Initial Dry Density (pcf)	Volumetric Moisture Content, Initial Dry Density		Final Dry Density (pcf)	Volumetric Moisture Content, Final Dry Density	
				Uncorrected	Rock Corrected		Uncorrected	Rock Corrected
Composite from SB-6_7_12GT, 0'-27'	0.04	23.6	101.8	0.385	0.345	98.7	0.373	0.336
	1/3	17.9	102.2	0.293	0.263	101.0	0.290	0.260
	1	15.8	101.9	0.258	0.231	99.8	0.253	0.227
	4	14.1	102.0	0.230	0.207	99.0	0.224	0.201
	9.9	9.5	100.3	0.153	0.137	100.3	0.153	0.137
	28.9	6.8	100.9	0.110	0.099	100.9	0.110	0.099
	58.6	5.6	101.1	0.091	0.081	101.1	0.091	0.081
	232.1	3.5	102.2	0.057	0.051	102.2	0.057	0.051
Composite from SB-13-AL, 0'-25', SB-15AL, 0'-50'	0.04	13.2	109.7	0.232	0.168	110.8	0.234	0.170
	1/3	9.3	110.0	0.164	0.119	110.3	0.164	0.119
	1	8.7	110.4	0.154	0.112	110.5	0.154	0.112
	4	7.7	109.5	0.135	0.098	110.1	0.136	0.098
	6.7	4.5	110.3	0.080	0.058	110.3	0.080	0.058
	12.8	4.0	109.8	0.070	0.051	109.8	0.070	0.051
	29.6	3.0	109.8	0.053	0.038	109.8	0.053	0.038
	89.2	2.3	109.5	0.040	0.029	109.5	0.040	0.029
Composite from TP-6_7_9, 2'-5'	0.04	26.1	98.0	0.410	0.352	94.9	0.397	0.342
	1/3	19.2	97.7	0.301	0.258	97.4	0.300	0.257
	1	16.9	97.5	0.264	0.227	100.7	0.273	0.233
	4	16.6	98.0	0.261	0.224	100.0	0.266	0.228
	5.1	11.4	97.9	0.179	0.154	97.9	0.179	0.154
	8.1	9.7	97.7	0.152	0.130	97.7	0.152	0.130
	15.4	8.1	97.8	0.127	0.109	97.8	0.127	0.109
	35.7	6.6	96.9	0.102	0.088	96.9	0.102	0.088
Composite from TP-12, 2'-4'	0.04	28.7	101.6	0.467	0.374	98.8	0.454	0.366
	1/3	21.2	103.0	0.350	0.280	98.6	0.335	0.270
	1	17.2	101.7	0.280	0.225	97.5	0.269	0.217
	4	14.4	101.8	0.235	0.188	98.1	0.226	0.183
	8.3	11.6	100.1	0.186	0.150	100.1	0.186	0.150
	20.3	9.2	100.4	0.148	0.119	100.4	0.148	0.119
	41.3	7.5	100.1	0.120	0.097	100.1	0.120	0.097
	106.9	5.4	100.2	0.087	0.070	100.2	0.087	0.070
	334.6	3.5	100.0	0.056	0.045	100.0	0.056	0.045
Composite from TP-15-16, 2'-13'	0.04	21.7	105.4	0.366	0.284	99.9	0.348	0.273
	1/3	18.5	105.6	0.313	0.243	102.0	0.302	0.236
	1	14.5	105.8	0.246	0.191	100.2	0.233	0.183
	4	12.3	106.0	0.209	0.162	101.9	0.201	0.157
	10.9	11.5	104.2	0.192	0.149	104.2	0.192	0.149
	14	9.3	104.4	0.156	0.121	104.4	0.156	0.121
	27.9	7.3	104.3	0.122	0.095	104.3	0.122	0.095
	98.1	4.9	105.2	0.083	0.064	105.2	0.083	0.064
	295.3	2.8	104.8	0.047	0.037	104.8	0.047	0.037

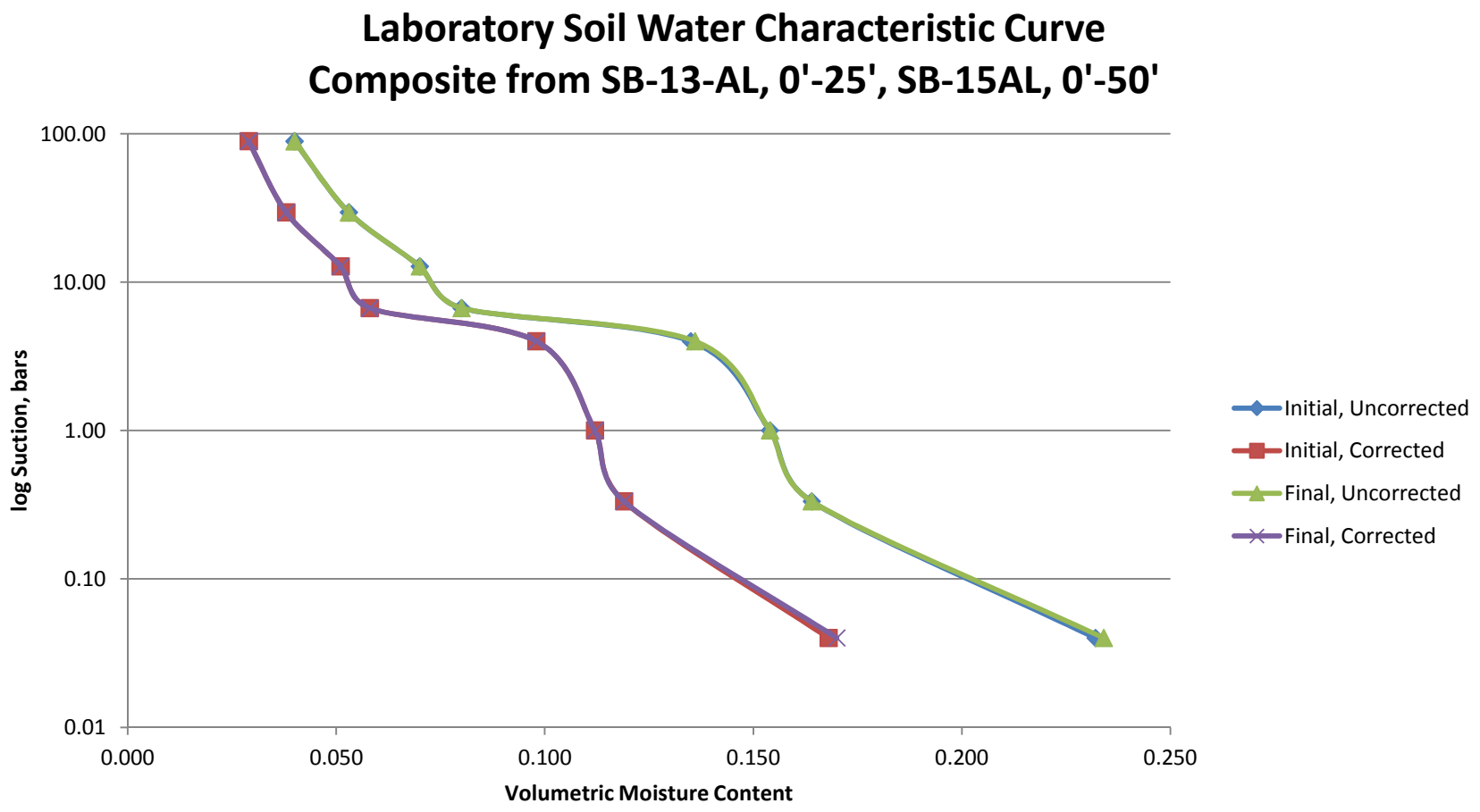
Soil Water Characteristic Curve Results
ASTM D 6836
STRATA Ballard Laboratory Testing
AS17.1019.00

Geo-Logic ASSOCIATES

Sample	Suction (Bars)	Gravimetric Moisture Content, %	Initial Dry Density (pcf)	Volumetric Moisture Content, Initial Dry Density		Final Dry Density (pcf)	Volumetric Moisture Content, Final Dry Density	
				Uncorrected	Rock Corrected		Uncorrected	Rock Corrected
Composite from TP-20, 1'-4'	0.04	23.3	99.7	0.372	0.332	95.5	0.357	0.320
	1/3	16.4	99.1	0.261	0.233	99.2	0.261	0.233
	1	16.1	99.4	0.256	0.229	99.0	0.255	0.228
	4	13.7	99.6	0.219	0.195	98.3	0.216	0.193
	6.5	10.3	98.6	0.163	0.145	98.6	0.163	0.145
	16.9	9.3	97.7	0.143	0.130	97.7	0.146	0.130
	45.7	6.4	98.5	0.101	0.090	98.5	0.101	0.090
	99	4.7	98.2	0.074	0.066	98.2	0.074	0.066
Composite from SB-14AL, 0'-35'	0.04	17.8	103.4	0.295	0.277	101.6	0.290	0.272
	1/3	17.1	103.5	0.284	0.266	104.0	0.285	0.267
	1	16.2	103.1	0.268	0.251	103.3	0.268	0.252
	4	14.3	103.2	0.236	0.222	102.9	0.236	0.221
	7.2	11.0	102.0	0.180	0.169	102.0	0.180	0.169
	14.8	8.9	102.1	0.146	0.137	102.1	0.146	0.137
	31.3	6.9	102.0	0.113	0.106	102.0	0.113	0.106
	70.5	4.9	102.0	0.080	0.075	102.0	0.080	0.075
Composite from TP-8, 3.5'-13'	0.04	24.2	105.8	0.410	0.269	101.7	0.394	0.262
	1/3	20.4	105.8	0.346	0.227	101.1	0.331	0.220
	1	17.9	105.8	0.304	0.199	103.0	0.295	0.195
	4	16.5	106.2	0.281	0.184	102.3	0.270	0.179
	6.8	12.9	104.8	0.217	0.142	104.8	0.217	0.142
	11.4	10.5	105.1	0.177	0.116	105.1	0.177	0.116
	23.5	8.2	105.4	0.139	0.091	105.4	0.139	0.091
	41.3	6.6	105.0	0.111	0.073	105.0	0.111	0.073
	93	5.5	104.1	0.092	0.060	104.1	0.092	0.060
Composite from TP-14, 3'-7'	0.04	30.3	93.4	0.453	0.315	90.1	0.437	0.307
	1/3	24.5	93.0	0.365	0.254	87.7	0.344	0.244
	1	22.8	93.2	0.341	0.237	89.9	0.329	0.231
	4	21.0	93.4	0.314	0.219	89.5	0.301	0.212
	8.7	13.2	93.7	0.198	0.138	93.7	0.198	0.138
	14.1	12.2	92.8	0.181	0.126	92.8	0.181	0.126
	19	10.6	92.5	0.157	0.110	92.5	0.157	0.110
	34.6	9.0	92.1	0.133	0.093	92.1	0.133	0.093
	66.9	6.9	92.2	0.102	0.071	92.2	0.102	0.071



STRATA **Ballard Laboratory Testing**	**Laboratory Soil Water Characteristic Curves** **ASTM D6836** **Project No. AS17.1019.00**	Geo-Logic ASSOCIATES



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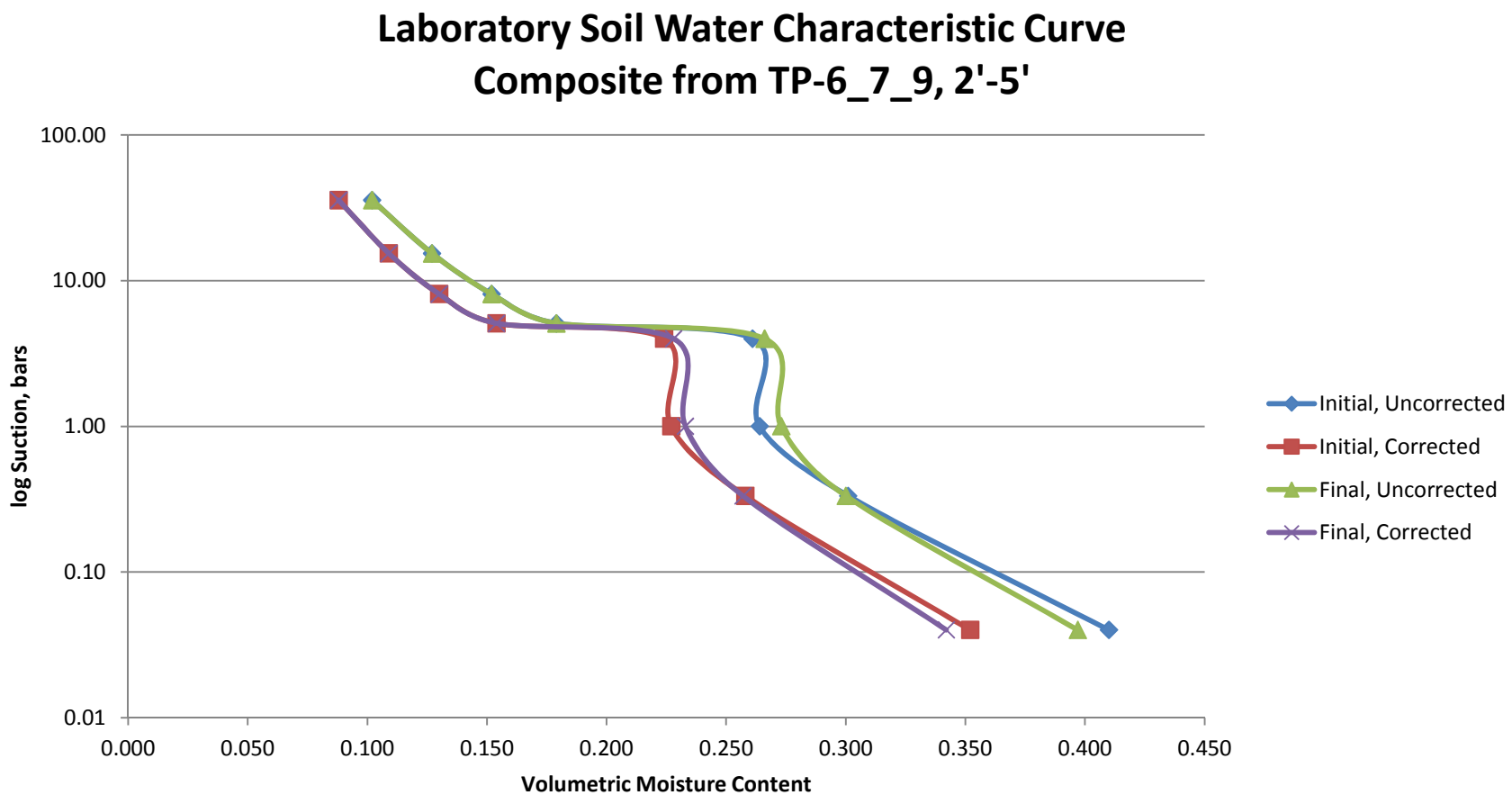
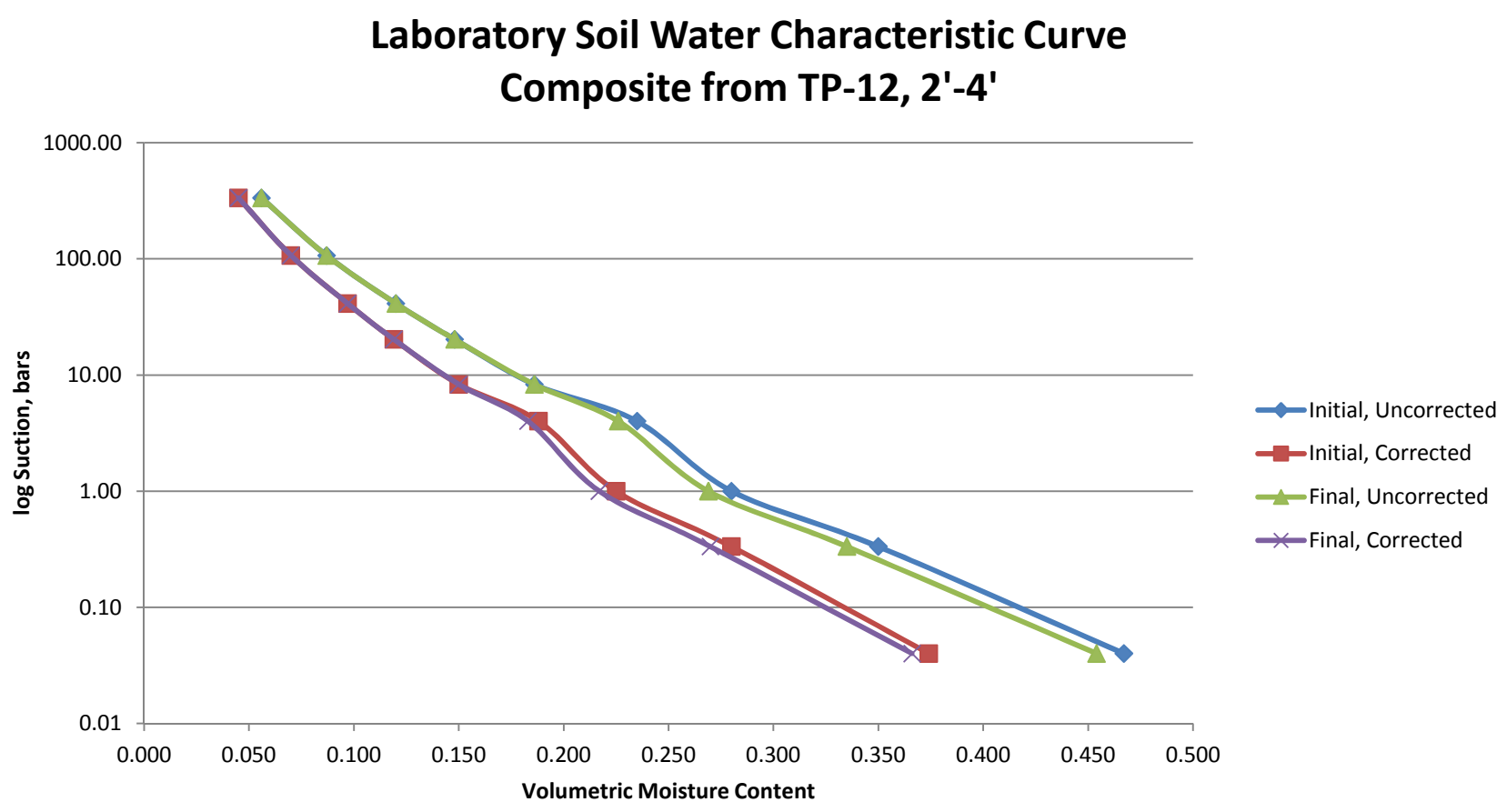
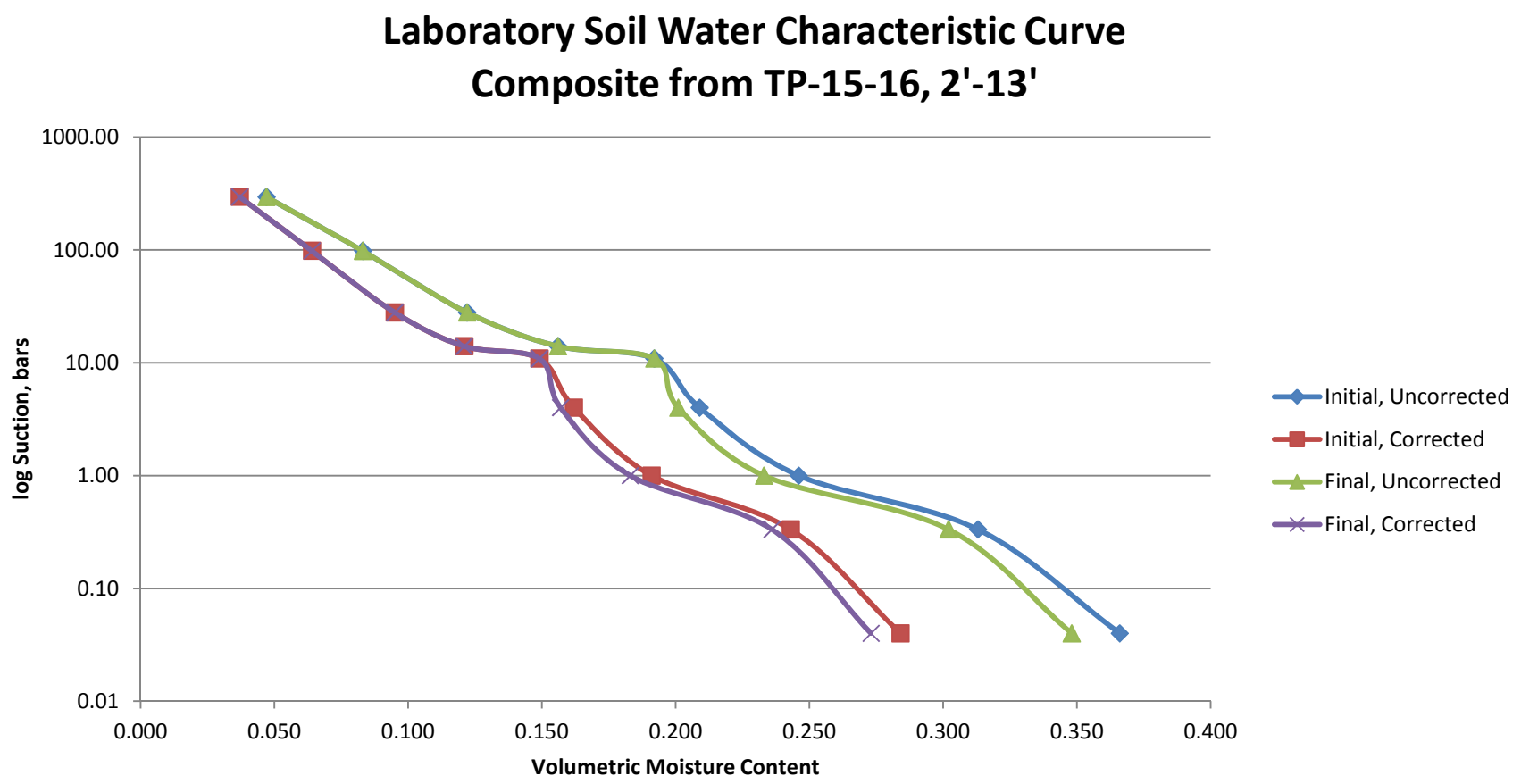


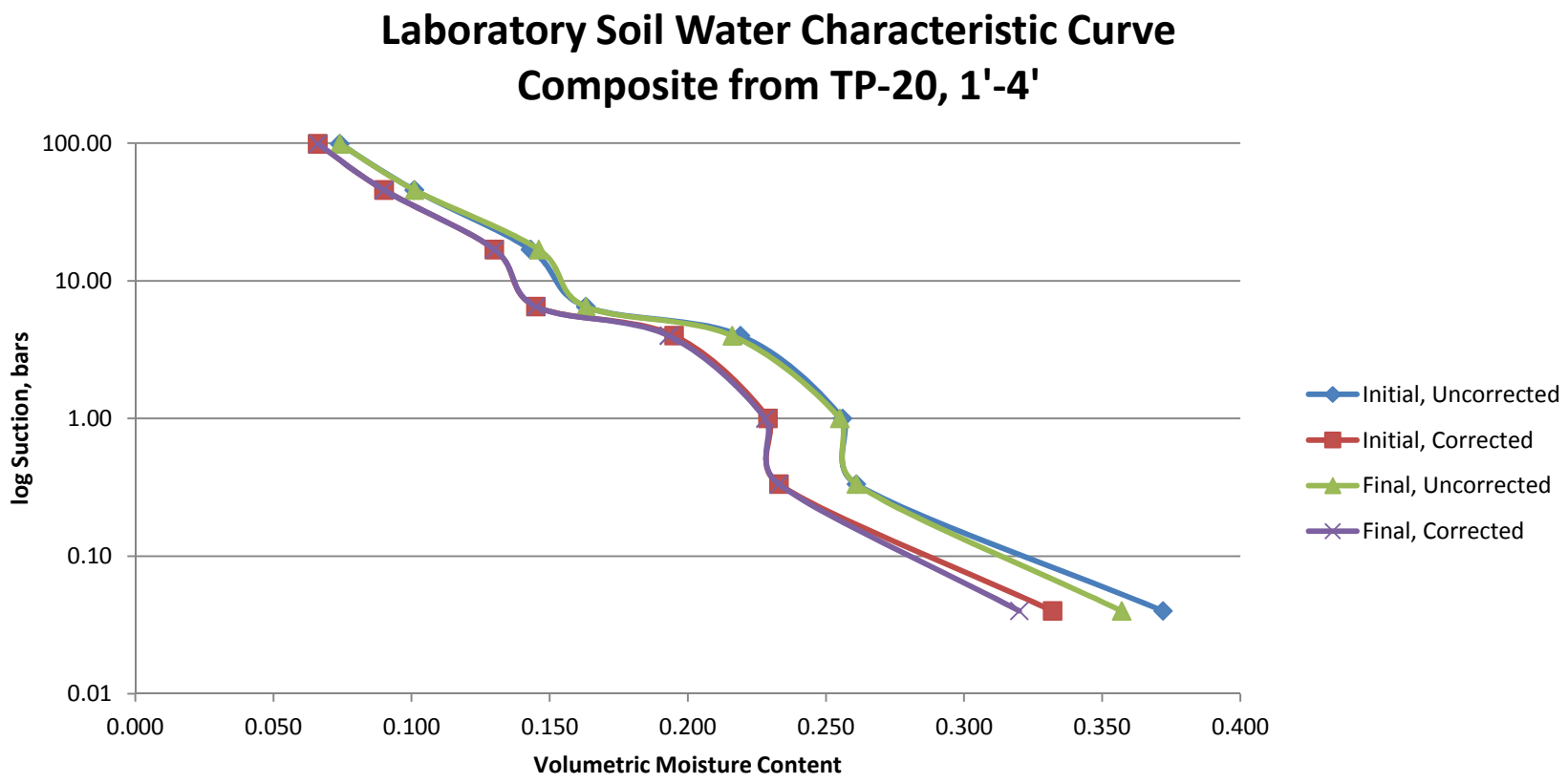
STRATA **Ballard Laboratory Testing**	**Laboratory Soil Water Characteristic Curves** **ASTM D6836** **Project No. AS17.1019.00**	Geo-Logic ASSOCIATES



STRATA **Ballard Laboratory Testing**	**Laboratory Soil Water Characteristic Curves** **ASTM D6836** **Project No. AS17.1019.00**	Geo-Logic ASSOCIATES

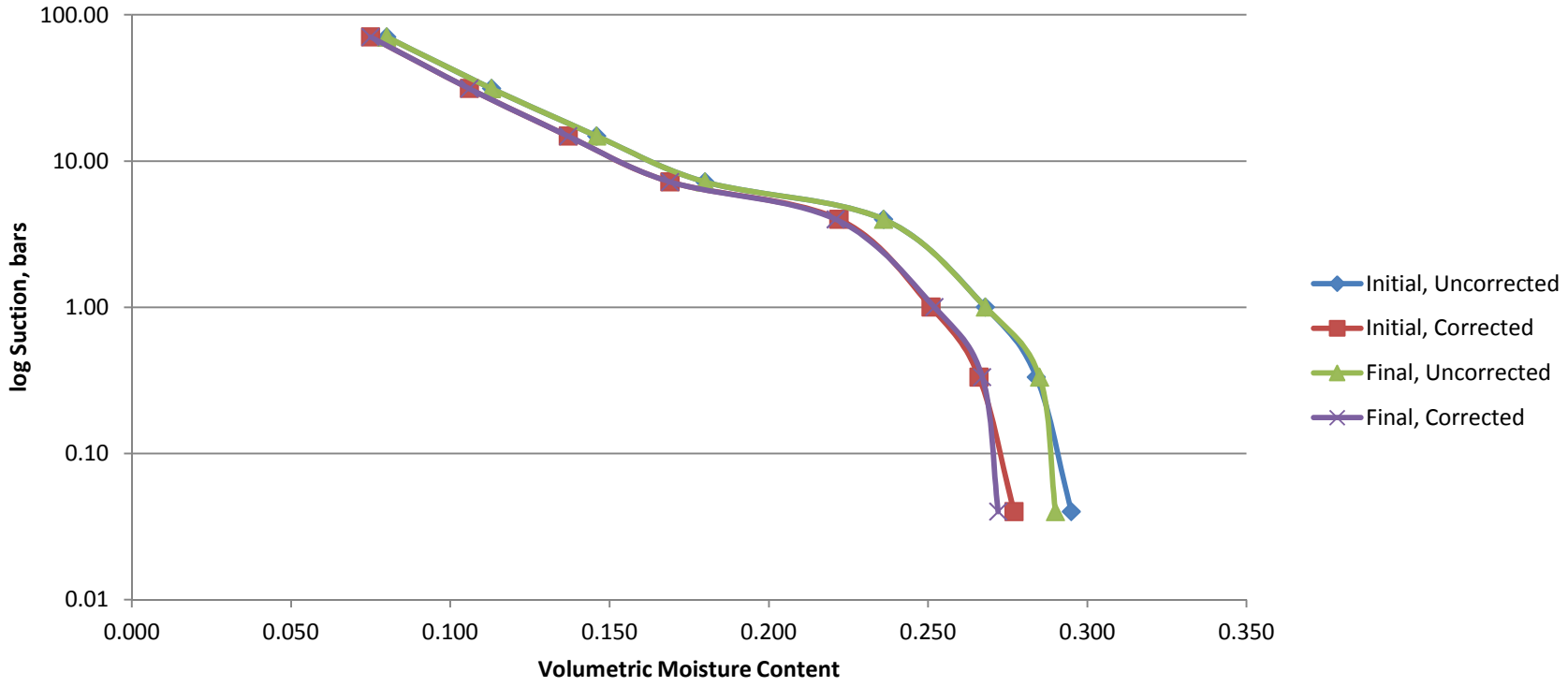


STRATA **Ballard Laboratory Testing**	**Laboratory Soil Water Characteristic Curves** **ASTM D6836** **Project No. AS17.1019.00**	Geo-Logic ASSOCIATES

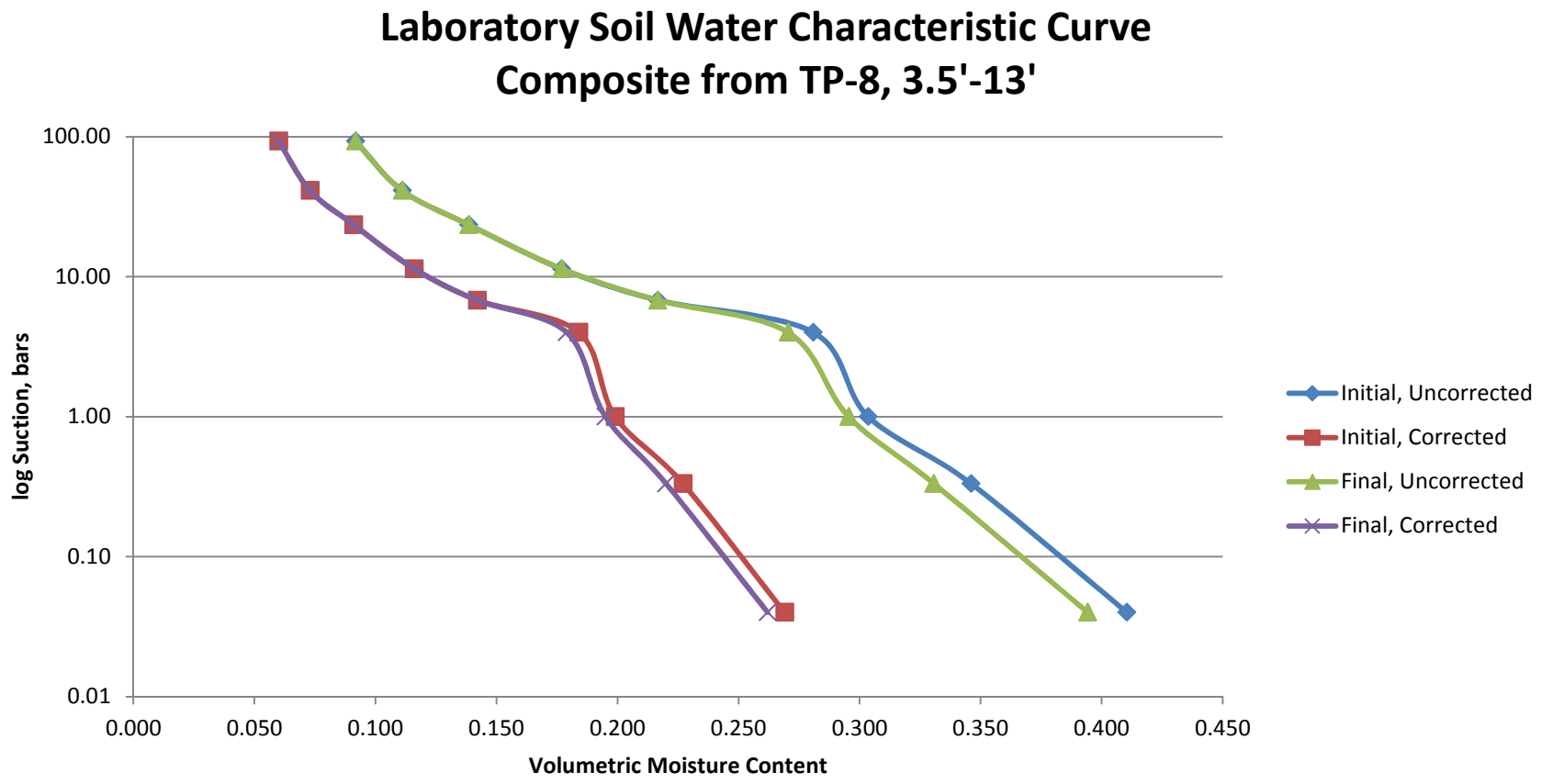


STRATA **Ballard Laboratory Testing**	**Laboratory Soil Water Characteristic Curves** **ASTM D6836** **Project No. AS17.1019.00**	Geo-Logic ASSOCIATES

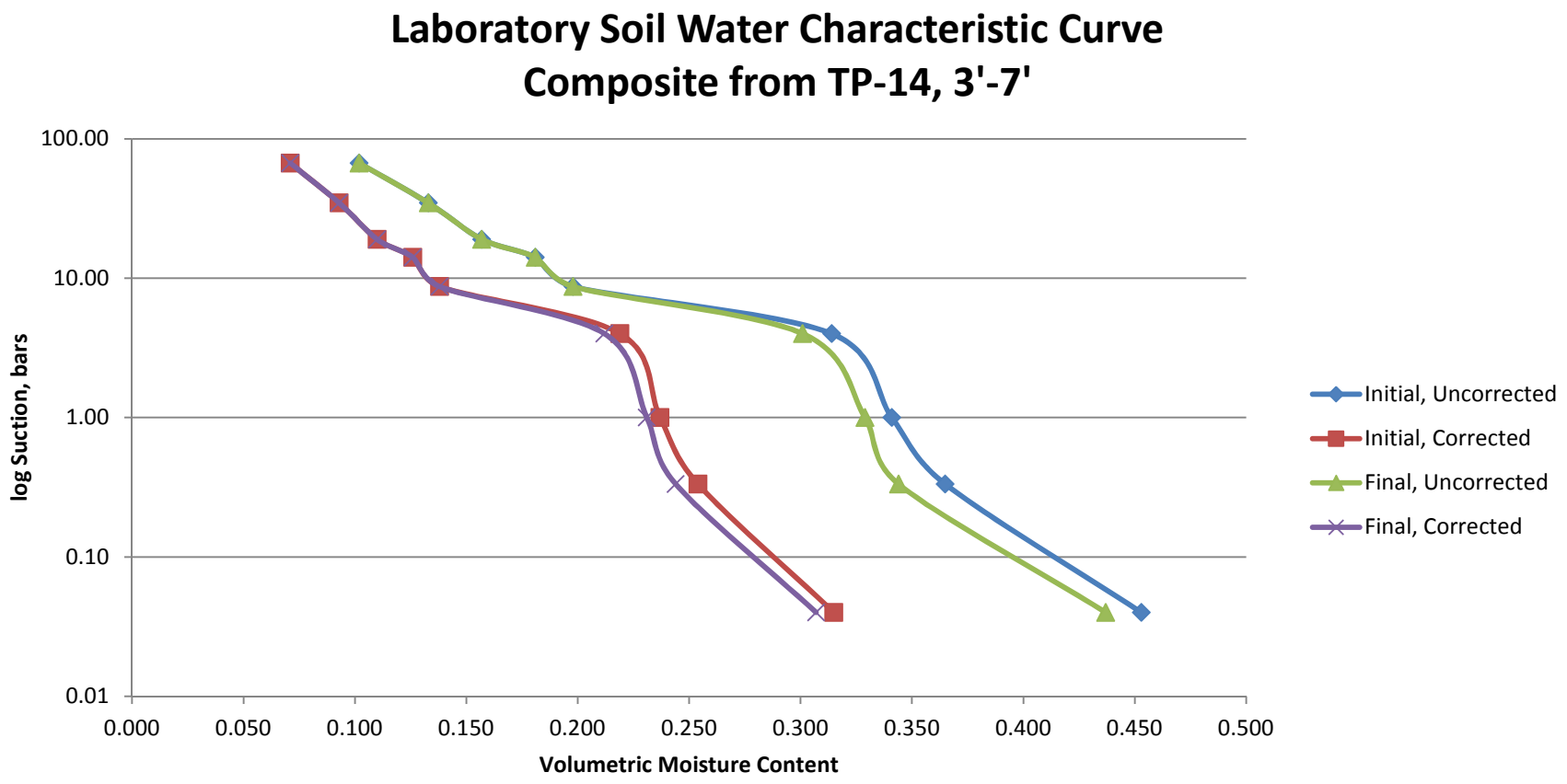
Laboratory Soil Water Characteristic Curve
Composite from SB-14AL, 0'-35'



STRATA **Ballard Laboratory Testing**	**Laboratory Soil Water Characteristic Curves** **ASTM D6836** **Project No. AS17.1019.00**	Geo-Logic ASSOCIATES



STRATA **Ballard Laboratory Testing**	**Laboratory Soil Water Characteristic Curves** **ASTM D6836** **Project No. AS17.1019.00**	Geo-Logic ASSOCIATES



STRATA **Ballard Laboratory Testing**	**Laboratory Soil Water Characteristic Curves** **ASTM D6836** **Project No. AS17.1019.00**	Geo-Logic ASSOCIATES